Undergraduate Catalog

Vanderbilt University

2023/2024

Containing general information and courses of study for the 2023/2024 session

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Calendar 2023/2024

Dates are subject to change.

FALL SEMESTER 2023

Classes begin. Wednesday 23 August

Registration ends. Tuesday 5 September.

Deadline to pay fall charges. Thursday 31 August.

Thanksgiving holidays. Saturday 18 November - Sunday 26 November

Classes end. Thursday 7 December

Reading days and examinations. Friday 8 December - Saturday 16 December

Fall semester ends. Saturday 16 December

SPRING SEMESTER 2024

Deadline to pay spring charges. Sunday 31 December 2023

Classes begin. Monday 8 January

Registration ends. Friday 19 January

Spring holidays. Saturday 9 March - Sunday 17 March

Classes end. Monday 22 April

Reading days and examinations. Tuesday 23 April - Thursday 2 May

Commencement. Friday 10 May

MAYMESTER 2024

Classes begin. Monday 6 May

Classes end; examinations. Friday 31 May

SUMMER SESSION 2024

Classes begin. Tuesday 4 June

Examinations for first-half courses. Friday 5 July

Second-half courses begin. Tuesday 9 July

Examinations for second-half and full-term summer courses. Friday 9 August

Special Programs for Undergraduates

Immersion Vanderbilt

Immersion Vanderbilt ensures that all undergraduates have access to diverse forms of learning through experiential opportunities. This bipartite program asks each student to first develop and complete an immersive experience and then a culminating project. Students engaged in Immersion Vanderbilt are supported by both faculty and the office of Experiential Learning and Immersion Vanderbilt. Participation in Immersion Vanderbilt is a requirement that applies to all undergraduates. Some majors, minors, programs of study, and classes are approved to satisfy the immersive experience, culminating project, or both for Immersion Vanderbilt. A student may complete one or more experiential learning activities.

To complete the Immersion Vanderbilt requirement, students engage in one or more experiential learning activities including but not limited to research, internships, study abroad, community and civic engagement, innovation and design, and creative arts. Students are guided by a faculty or staff member who acts as their experience mentor. If a student is engaging in research, a Vanderbilt faculty member must act as the adviser/experience mentor. As part of the program, students are prompted to reflect upon their experiences and the creation of their culminating project. The goal of the mentoring and self-reflection process is to ensure the student gains a deeper understanding of the experience and how it is meaningful to their own goals.

After students complete the immersive experience(s) and self-reflection, they identify and meet with their Immersion faculty adviser to brainstorm, plan, and execute their culminating project. Students are encouraged to develop their culminating project based on their immersive experience(s), but this is not required–i.e., the culminating project can relate to one of the immersive experiences already completed or to a new topic. Examples of culminating projects include research presentations, art shows, performances, design projects, videos, websites, capstones, and senior theses, among others. Students create their culminating projects under the guidance of their Immersion Vanderbilt faculty adviser, who also assesses the project and marks it as complete.

When the Immersion Vanderbilt faculty adviser approves the culminating project submission, the Immersion Vanderbilt requirement is complete and cannot be changed. Completion of the Immersion Vanderbilt graduation requirement is noted on the student’s degree audit, and the experiential pathway and Immersion Vanderbilt project title are added to the student’s transcript. The experiential pathways include: 1) Research; 2) Study Abroad; 3) Innovation, Arts, & Design; 4) Civic & Community Engagement; 5) Leadership & Professional Development; and 6) Internships. The project title that appears on the transcript is created by the student in consultation with their faculty adviser. https://www.vanderbilt.edu/immersion/

Study Abroad

Vanderbilt offers study abroad opportunities for all undergraduate students from the College of Arts and Science, Blair School of Music, School of Engineering, and Peabody College. Programs are available for the semester, full academic year, summer, and Maymester. Students may study abroad any time after their first year at Vanderbilt. Studying abroad during senior year requires special approval from the student's home college/school and may delay graduation. Transfer students can apply to study abroad after completing their first semester at Vanderbilt. Vanderbilt students have opportunities to study in more than 40 countries around the globe through study abroad programs led by Vanderbilt faculty and additional programs provided by agreements with other universities and organizations.

Study abroad programs are open to students in good academic, financial, and disciplinary standing, with an overall grade point average of 2.700 or better, or a grade point average at this level in each of the two most recent semesters. Many programs require a higher grade point average and, where applicable, the student’s application must also be approved by the appropriate host university, institute, or consortium. Study abroad programs that are managed by Vanderbilt, such as Maymester courses, offer direct Vanderbilt credit. Approved programs offered by Vanderbilt’s exchange, consortium, or provider partners are articulated as Vanderbilt Study Abroad/Away Credit. Grades awarded are reflective of the local grading practices of the host institution. Students are encouraged to discuss the grading bases and practices of their specific program with their study abroad adviser prior to departure. Hours earned through these programs and approved in advance by the appropriate department serve to satisfy the residence requirement (refer to the relevant Academic Regulations chapter for the home school). Students are not eligible to earn Dean’s List honors for the semester in which they study abroad.

Study abroad programs offered via the Office of Experiential Learning and Immersion Vanderbilt are eligible to fulfill Immersion Vanderbilt's immersive experience requirement. All students who study abroad should submit an Immersive Experience Declaration form with the Office of Experiential Learning and Immersion Vanderbilt.

Students studying on Vanderbilt programs or Vanderbilt-approved programs for the academic year or semester are eligible for federal and Vanderbilt University financial aid, including merit scholarships but excluding work-study. All participants in approved Study Abroad programs are billed through Vanderbilt Student Accounts and can expect to pay Vanderbilt tuition, and a program fee.

If a program has been approved by Vanderbilt, students must enroll in the program via the Office of Experiential Learning and Immersion Vanderbilt. In no case, after matriculating at Vanderbilt, may a student apply to participate in an approved program for transfer credit through a different university, or through an external agency, and then seek to transfer that credit into Vanderbilt. Information is available from the Office of Experiential Learning and Immersion Vanderbilt, Suite 109 in the Student Life Center, immersion.vanderbilt.edu.

Vanderbilt-Approved Programs

Through arrangements with external institutions and organizations, Vanderbilt students may select from a wide range of study abroad opportunities. Vanderbilt-approved study abroad programs can be sorted into three general program types: Study Center programs; Direct University Enrollment programs; and Study Center and Direct University Enrollment Hybrid programs.

Study Center programs tend to serve primarily U.S. study abroad students, and often have a thematic focus or specialty, such as language immersion, research, or experiential learning.

Direct University Enrollment programs allow students to enroll directly in a university abroad and study alongside local and other international students. Direct University Enrollment programs provide access to a wide variety of coursework across multiple disciplines. Many of these programs are facilitated by a partner organization, which coordinates housing and other services as well as facilitates integration with the host university.

Study Center and Direct University Enrollment Hybrid programs combine the two program types. Students are based at a program center with other study abroad students and have the option, or requirement, to take courses at one or more local universities.

Joint and Dual Programs

Vanderbilt undergraduates in Blair School of Music, School of Engineering, and Peabody College take their background liberal arts and science courses in the College of Arts and Science—and may take other elective courses in these areas as individual degree programs will allow. In like manner, students in the College of Arts and Science may take courses in the other schools for regular credit toward the liberal arts degree. Students may earn a second major or minor outside of their school, as well.

Several dual programs, combining undergraduate study with work toward a master’s degree, may facilitate possible saving a year in the time required to complete both degrees. Details of the various dual programs will be found in the appropriate school sections of this catalog.

Preparations for Careers in the Health Professions

Study programs leading to careers in medicine, dentistry, veterinary science, pharmacy science, and many related areas are overseen by the Health Professions Advisory Office (HPAO).

Medicine

There is no formal prehealth program of courses at Vanderbilt. Each student should plan a program to meet individual requirements. Prehealth studies should include courses that are necessary to meet professional school admission requirements and to satisfy the requirements of the student's undergraduate degree program. Students interested in prehealth studies should plan their undergraduate programs in consultation with HPAO staff and their primary academic adviser. Additional information is available at vanderbilt.edu/hpao.

Students are encouraged to consult the directory *Medical School Admission Requirements: United States and Canada,* published online by the Association of American Medical Colleges, as a guide to planning their undergraduate programs. A link to the guide can be found on the HPAO website.

See the *Vanderbilt University School of Medicine Catalog* for the official statement on minimum requirements for admission to Vanderbilt University School of Medicine.

Nursing

Pre-nursing students enrolled in the College of Arts and Science or Peabody College are strongly encouraged to apply for admission to the School of Nursing's M.S.N. program by November 1 of their senior year at Vanderbilt.

Admission to the Graduate Nursing Program. Students are subject to all nursing school admission requirements, and no student is assured of admission to the School of Nursing. Prior to admission to the School of Nursing, applicants must have completed prerequisite courses, including the following:

1. A required introductory course in statistics that includes descriptive and inferential statistical techniques; Mathematics 1010–1011, Mathematics 2820, or Peabody Psychology 2110 will fulfill this requirement.
2. *11 hours of natural science courses.* Courses in human anatomy and physiology (MHS 3101 and 3102) and microbiology (MHS 1500) are required. Human and Organizational Development 1250 (Applied Human Development) or Peabody Psychology 1250 (Developmental Psychology) will fulfill the requirement.
3. 2 hours of nutrition are required. MHS 1600, Introduction to Nutritional Health, fulfills the requirement for nutrition.

Admission to the School of Nursing is competitive. Consult the School of Nursing catalog for specific requirements and admission procedures. Students are encouraged to write or call the School of Nursing's Office of Admissions, Room 170, 461 21st Avenue South, Nashville, Tennessee 37240, (615) 322-3800, or visit the website, nursing.vanderbilt.edu, for further explanation of pre-nursing and graduate nursing programs.

Preparation for Other Professional Careers

Architecture, Law, and Journalism

Undergraduate students expecting to pursue architecture, law, or journalism at the graduate level may earn any major at Vanderbilt, but should be aware of graduate field requirements. See the chapter on Special Programs in the College of Arts and Science section of this catalog.

Teacher Licensure Programs

Vanderbilt offers programs through Peabody College leading to licensure for teaching. Students seeking teacher licensure should refer to the Peabody College section of this catalog. Students seeking licensure in music should see the Blair School of Music section of this catalog.

Undergraduate students in the College of Arts and Science, Blair School of Music, the School of Engineering, or Peabody College who are seeking licensure in early childhood, elementary, or secondary education must complete a major outside of teacher education and a Peabody College education major. Licensure in special education fields does not require a second major.

Undergraduate Business Minor

Vanderbilt University offers a transinstitutional, interdisciplinary undergraduate minor in business that is jointly administered by the College of Arts and Science, Blair School of Music, the Owen Graduate School of Management, Peabody College, and the School of Engineering. The undergraduate business minor requires 16.5 credit hours and is directed by Gary Kimball.

The undergraduate business minor (BUS) provides students with a rigorous exposure to the fundamental business disciplines of financial reporting, finance, organizational behavior, marketing, and operations. The undergraduate business minor also intentionally grounds the study of business within the liberal arts tradition, allowing students to understand the context within which business operates in society.

Students declaring the undergraduate business minor (BUS) may not also declare either of the minors in human and organizational development (HOD) or engineering management (ENGM). Students electing the undergraduate business minor must follow academic regulations regarding minors in their home school, including but not limited to regulations regarding unique hours.

Four of the five mandatory courses in the undergraduate business minor require one of the following prerequisites, which may be completed in any order or simultaneously; Advanced Placement (AP) or International Baccalaureate (IB) credit may be used to satisfy the Microeconomics prerequisite.

1. Introductory Microeconomics: ECON 1020
2. Introductory Statistics: One of BME 2400, ECON 1500, ECON 1510, MATH 1011, MATH 2810, MATH 2820, MATH 2821, PSY 2100, PSY-PC 2110, or SOC 2100

The Undergraduate Business Minor

The undergraduate business minor (BUS) requires 16.5 credit hours of course work, distributed as follows:

1. 7.5 credit hours of required course work composed of 5 half-semester courses listed below. While not required, it is recommended that students complete the five required courses prior to fulfilling the elective requirement. Students may not concurrently enroll in any of the five required courses.

BUS 1100	Essentials of Financial Reporting	(1.5 hours)
BUS 1300	Principles of Finance	(1.5 hours)
BUS 1400	Organizational Behavior	(1.5 hours)
BUS 1600	Principles of Marketing	(1.5 hours)
BUS 1700	Managing Operations	(1.5 hours)

2. At least 6 credit hours of courses selected from one or more of the seven “BUS pathways” (entrepreneurship, ethics, finance and accounting, marketing and advertising, operations, organizational effectiveness, and strategy).
3. At least 3 credit hours of courses selected either from the “BUS pathways” or from the “business-in-society” electives. “Business-in-society” electives represent business-related disciplines in the liberal arts tradition, and are listed following the “BUS pathway” electives below.

BUS Pathways

Entrepreneurship

BUSA 2300, Entrepreneurship: The Business Planning Process

BUSA 3300, Entrepreneurial Challenge

BUSA 3841, Directed Study

ENGM 3600, Technology-based Entrepreneurship

SOC 3206, Creativity and Innovation in Society

Ethics

BUSA 2160, Corporate Social Responsibility

HODC 3232, Ethics for Human Development Professionals

PHIL 1100, Introduction to Business Ethics

PHIL 3609, Ethics and Business

Finance and Accounting

BUSA 2600, Managerial Accounting

BUSA 2705, Corporate Finance

BUSA 3605, Financial Reporting and Analysis

BUSA 3700, Investment Analysis

BUSA 3705, Financial Management

BUSA 3710, Corporate Valuation

BUSA 3841, Directed Study

ECON 2300, Money and Banking

ECON 3200, Public Finance

ECON 3300, Financial Instruments and Marketing

ECON 3610, International Finance

Marketing and Advertising

BUSA 2205, Business Development

BUSA 3200, Advanced Marketing

BUSA 3841, Directed Study

ENGM 3200, Technology Marketing

Operations

BUSA 2200, Data Analysis and Presentation

ENGM 3000, Enterprise Systems Design

ENGM 3650, Operation and Supply Chain Management

ENGM 3700, Program and Project Management

Organizational Effectiveness

CMST 2120, Business Communication

HODI 3240, Effectiveness in International For-Profit Organizations

HODL 3204, Leadership Theory and Practice

HODL 3224, Analyzing Organizational Effectiveness

HODL 3234, Advanced Organizational Theory

HODL 3244, Introduction to Human Resource Management

HODL 3254, Human Resource Management

HODL 3264, Evidence-based Practice in Organizations

HODL 3274, Managing Organizational Change

HODL 3314, Strategic Planning and Project Management

PSY 3605, Industrial and Organizational Psychology

SOC 3615, Human Behavior in Organizations

Strategy

BUSA 2150, Leading Business Through Crisis

BUSA 2200, Data Analysis and Presentation

BUSA 3105, Negotiation

BUSA 3110, Business Management

BUSA 3255, Corporate Strategy

BUSA 3841, Directed Study

ECON 2160, Strategic Analysis

ECON 3250, Industrial Organization

ECON 4260, Game Theory with Economic Applications

Business-in-Society Electives

ANTH 3135, Development, Social Enterprise, Social Injustice

ANTH 4153, Economic Anthropology

CHIN 4401, Business Chinese I

CHIN 4402, Business Chinese II

ECON 2100, Labor Economics

ECON 2150, Economic History of the United States

ECON 2220, Latin American Development

ECON 3100, Wages, Employment, and Labor Markets

ECON 3160, Economic History of Europe

ENGL 3898, Special Topics in English and American Literature: Business Leader's Bookshelf

FREN 3111, French for Business

GER 4558, Business German

HIST 1600, European Economic History, 1000-1700

HIST 1640, History of American Capitalism

HIST 1660, American Enterprise

HIST 1665, Capital, Labor, and Democracy

HIST 2138, Blood Diamonds, Blood Oil, Commodities, and Conflicts in Africa

HIST 3190, Religion, Culture, and Commerce: the World Economy in Historical Perspective

HIST 3200, Poverty, Economy, and Society in Sub-Saharan Africa

HODL 3890, Special Topics: Introduction to Data Science: Using Data for Understanding

MENT 1120, The Business of Music

MENT 1130, Building Communities through Music and the Arts [1 credit hour]

MENT 1135, Arts Administration: Best Practices and Careers in the Arts Organization [2 credit hours]

MENT 1140, Creating Funding and Nonprofit Vehicles for 21st-Century Community Service [2 credit hours]

PSY-PC 2120, Statistical Analysis (second course in sequence)

PSY-PC 3735, Correlation and Regression

PSY-PC 3749, Applied Nonparametric Statistics

SOC 1020, Contemporary Social Issues: Corporations and Society (only this emphasis)

SOC 3316, Business, Civil Society, and the Environment

SOC 3318, Sociology of Green Jobs

SPAN 3345, Spanish for Business and Economics

Course Descriptions

Undergraduate Data Science Minor

Data Science is an emerging interdisciplinary field whose goal is to extract knowledge and enable discovery from complex data using a fusion of computation, mathematics, statistics, and machine learning. Datasets can be as varied as maps of the universe, MRI images, human genomes, medical records, stock market transactions, educational data, historical texts, infrastructure systems, or website clickstream data. Over the coming decades, Data Science is expected to have significant impacts on basic and applied research in the sciences, social sciences, arts and humanities, and engineering as well as impact all sectors of the economy from health care to education, government, transportation, finance, manufacturing, construction, and urban planning. Data Science has the potential to improve individual and community health and education; develop smart communities that enable efficient circulation of people, goods, and services; enable informed decision making in public and private sectors; and enhance environmental sustainability and overall quality of life. Given the wide range of applications and potential benefits, the powerful tools and techniques of Data Science must be used ethically and responsibly.

The faculty at Vanderbilt have created a unique trans-institutional undergraduate minor in Data Science that spans all four undergraduate colleges and is affiliated with the Vanderbilt Data Science Institute. Students in Data Science are introduced to the foundations of this interdisciplinary field, with coursework in computer programming, statistics, machine learning, and visualization, interwoven with ethical considerations of collecting, curating, analyzing, visualizing, and interpreting data. The minor in Data Science prepares students for advanced coursework in statistics and data analysis, scientific computing and simulation, machine learning and visualization, and high performance computing and big data. The minor strives to prepare students for unique immersion experiences in basic and applied research, for civic and professional engagement in the public and private sectors, and for international experiences in industry, government, or non-governmental organizations. The minor provides a solid foundation for future professions or graduate study in any field that collects, analyzes, models, or interprets data.

Data Science Minor Requirements

1. *Introduction to Data Science (3 hours)*: DS 1000.
2. *Computer Programming (3 hours)*: One of DS 1100, CS 1100, CS 2201, or CS 2204.
3. *Introduction to Statistics (3 hours)*: One of DS 2100, BME 2400, BSCI 3270, CE 3300, ECON 1500 or 1510, MATH 2810 or 2821, PSY 2100, PSY-PC 2110, or SOC 2100.
4. *Data Science Fundamentals (4 hours)*: DS 3100.
5. *Machine Learning (3 hours)*: One of DS 3262, CS 3262, CS 4262, ECON 3750, or MATH 3670.
6. *Elective (3 hours)*: One course from the list of electives below or DS 3850.

Electives in data science are courses with various combinations of computation, visualization, simulation, statistics, psychometrics, and/or machine learning aimed at understanding and explaining data in the physical, life, or social sciences, engineering, arts, or the humanities, or courses that examine the impact of data on society and its institutions. Students and faculty are encouraged to petition for new courses with data science content to be considered as electives for the minor.

Intermediate / Advanced Programming, Modeling, Simulation

ASTR 3800 Structure Formation in the Universe

BME 4310 Modeling Living Systems for Therapeutic Bioengineering

CHEM 5410 Molecular Modeling Methods

CHEM 5420 Computational Structural Biochemistry

EES 4760 Agent and Individual Based Computational Modeling

ME 4271 Fundamentals of Robotic Manipulators

ME 4284 Modeling and Simulation of Dynamic Systems

ME 4263 Computational Fluid Dynamics and Multiphysics Modeling

ME 4275 Finite Element Analysis

PHYS 3790 Computational Physics

PSY 4218 Computational Modeling

PSY 4219 Scientific Computing for Psychological and Brain Sciences

PSY 4775 Models of Memory

SC 3250 Scientific Computing Toolbox

SC 3260 High Performance Computing

Intermediate / Advanced Probability, Statistics, and Data Analysis

ASTR 8070 Astrostatistics

BIOS 6311 Principles of Modern Biostatistics

BIOS 6312 Modern Regression Analysis

BIOS 6341 Fundamentals of Probability

BIOS 6342 Contemporary Statistical Inference

BIOS 7362 Advanced Statistical Inference and Statistical Learning

BIOS 8366 Advanced Statistical Computing

BME 4420 Quantitative and Functional Imaging

CE 4320 Data Analytics for Engineers

ECON 3035 Econometric Methods

ECON 3330 Economics of Risk

ECON 4050 Topics in Econometrics

EES 3310 Global Climate Change

MATH 3640 Probability

MATH 3641 Mathematical Statistics

MATH 4650 Financial Stochastic Processes

PSY 3891 Bayesian Cognitive Modeling

PSY-PC 2120 Statistical Analysis
PSY-PC 3722 Psychometric Methods
PSY-PC 3724 Psychometrics

PSY-PC 3738 Introduction to Item Response Theory

PSY-PC 3743 Factor Analysis

PSY-PC 3749 Applied Nonparametric Statistics

PSY-PC 3746 Multivariate Statistics

PSY-PC 3737 Structural Equation Modeling

PSY-PC 3732 Latent Growth Curve Modeling

PSY-PC 3727 Modern Robust Statistical Methods
PSY-PC 7878 Statistical Consulting

Machine Learning, Visualization, Data Science

ANTH 3261	Introduction to Geographic Information Systems and Remote Sensing
ANTH 3867	Digital Archaeology
ASTR 8080	Data Mining in Large Astronomical Surveys
BME 4420	Quantitative and Functional Imaging
BMIF 6310	Foundations of Bioinformatics
BMIF 6315	Methodological Foundations of Biomedical Informatics
BMIF 7380	Data Privacy in Biomedicine
CS 3265	Database Management Systems
CS 4260	Artificial Intelligence
CS 4266	Topics in Big Data
CS 6362	Advanced Machine Learning
EECE 4354	Computer Vision
ECON 3750	Econometrics for Big Data
MATH 3130	Fourier Analysis
MATH 3670	Mathematical Data Science
MATH 4620	Linear Optimization
MATH 4630	Nonlinear Optimization
NSC 3270	Computational Neuroscience
PSY-PC 3751	Exploratory and Graphical Data Analysis

The minor in Data Science is jointly administered by the Blair School of Music, the College of Arts and Science, Peabody College of Education and Human Development, and the School of Engineering; it is an official minor within each of the four schools.

Students electing the undergraduate minor in Data Science must follow academic regulations regarding minors in their home school, including but not limited to regulations regarding unique hours. Additional credit hours in Data Science that must be earned because of college-specific regulations regarding unique hours must be earned by taking additional courses chosen from the list of electives.

Course Description

Air Force Reserve Officer Training Corps (AFROTC)

AFROTC Program/Scholarships

General Benefits

Sponsored Activities

Aerospace Courses at TSU

The Air Force Reserve Officer Training Corps (AFROTC) provides pre-commission training for college men and women who desire to serve as commissioned officers in the United States Air Force and Space Force. When combined with the academic disciplines offered at the college level, the program provides the student a broad-based knowledge of management, leadership, and technical skills required for a commission and subsequent active-duty service in the Air Force or Space Force.

Graduates are commissioned as Second Lieutenants and will enter active duty. The main objectives of producing officers through the AFROTC program are (1) to procure officers with a broad educational base, (2) to provide a basic military education for college students, (3) to teach fundamentals and techniques of leadership, management, and decision making, and (4) to develop, in conjunction with other academic disciplines, individual character and attributes required of a commissioned officer in the United States Air Force.

AFROTC Program/Scholarships

Enrolling in AFROTC. Please go to www.tnstate.edu/afrotc for application deadlines. Vanderbilt University students may participate in the Air Force ROTC program in cooperation with Tennessee State University. Call Detachment 790, (615) 963-5980, and ask for a Cross-Town Application. Mail this application and your official transcripts with your immunization records back to Detachment 790. The program provides training and education that will develop skills and attitudes vital to the professional Air Force officer.

Students who participate in the Air Force ROTC program must be enrolled at Vanderbilt University. The student is also jointly enrolled as a TSU student and participates in Aerospace Studies (Air Force ROTC) at TSU. For more information, contact the unit admissions officer at (615) 963-5931/5979 or check our website at www.tnstate.edu/afrotc.

Currently there is no charge for tuition to take Air Force ROTC. The grade and credit can transfer back for graduation as indicated below.

Curriculum. The General Military Course (GMC) is composed of the first four semesters of aerospace studies (AERO) and is for freshmen and sophomores. The Professional Officer Course (POC) constitutes the final four semesters of AFROTC study and enrolls juniors and seniors. The Leadership Lab is required.

General Benefits

All students enrolled in the AFROTC program are provided textbooks and uniforms at no expense. Professional Officer Course (POC) students (juniors and seniors) and all scholarship students receive a monthly subsistence allowance which will increase each year the student remains in the program. All AFROTC students that remain in the program until their junior year, will contract with Air Force ROTC and receive a scholarship. Additionally, Vanderbilt University offers a generous stipend to all AFROTC cadets.

Sponsored Activities

Professional Development Training is provided during the summers to cadets interested in enhancing their knowledge of Air Force leadership and management opportunities, increasing their cultural awareness, and learning about specific career specialties.

AFROTC Flight Orientation Program is designed to allow all cadets, regardless of intended career field, the chance to fly as front seat or back seat passengers in Civil Air Patrol aircraft. Everyone can experience the joy of flight.

Aerospace Studies Courses at TSU

FRESHMAN YEAR

Heritage and Values of the United States Air Force and Space Force (no credit at Vanderbilt)

A survey course designed to introduce students to the United States Air Force and Space Force. This class provides

an overview of the role of military in U.S. society, military history, officership, professionalism, core values, career opportunities, and customs/courtesies. Freshman Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing followership experiences.

SOPHOMORE YEAR

Team and Leadership Fundamentals (transfers as GNEL 2000)

A course that focuses on laying the foundation for teams and leadership. The topics include; development/deployment of air power, leadership and quality principles, ethics and values, leadership development based on student participation in group problem solving, as well as oral/written communication development. The purpose of this course is to instill a leadership mindset and to motivate sophomore students to transition from an AFROTC cadet to AFROTC officer candidate. Sophomore Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing followership experiences.

JUNIOR YEAR

Leading People and Effective Communication (transfers as HOD 2051)

A course that teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. A mandatory junior year Leadership Laboratory provides advanced leadership experiences and the opportunity to apply the leadership and management principles of this course.

SENIOR YEAR

National Security Affairs/Preparation for Active Duty (no credit at Vanderbilt)

This course is designed for college seniors and provides them with the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty. A mandatory senior year Leadership Laboratory provides advanced leadership experiences and the opportunity to apply the leadership and management principles of this course.

Army Reserve Officers' Training Corps (ROTC)

Military Science Department

Military Science Courses

The Army Reserve Officers’ Training Corps (ROTC) is a sequential and progressive academic program that provides pre-commission training for college-educated men and women who desire to serve as commissioned officers in the active Army, Army Reserve, and Army National Guard. As the Army’s largest commissioning source, it fulfills a vital role in providing mature young men and women for leadership and management positions in an increasingly technological Army. Admission is open to both men and women who meet mental, moral, and physical qualifications.

Training goes beyond the typical college classroom and is designed to build individual confidence and self-discipline, instill values and ethics, and develop leadership skills. The course load consists of one course per semester. Each succeeding year will address course topics in greater depth as students receive feedback on their leadership style and assume positions of greater responsibility within the program. Graduates are commissioned as Second Lieutenants and will enter active duty with follow-on employment in the Army Reserves, National Guard, or active duty. Educational delays may be granted for graduates who desire to pursue advanced degrees prior to entry on active duty.

All university students in the Nashville area may participate in the Army ROTC program at Vanderbilt University. While Vanderbilt serves as the host university, students at partnership schools are not charged additional tuition to take military science courses. Grades are transferred back to each university and added to the students' transcripts.

Scholarships. Students can earn merit scholarships in several ways. High school seniors and graduates compete for four-year scholarships that are determined by local competition among Vanderbilt applicants. Although determined locally, the application process is centrally managed. Scholarship students receive financial benefits that cover the cost of full tuition scholarships each year, an annual $1,200 book allowance, all uniforms, and a monthly tax-free stipend of $420. Vanderbilt University also provides Vanderbilt ROTC scholarship students an additional $6,000 tuition grant each year for room and board.

Students who are not on scholarship receive the monthly stipend during their junior and senior years. All students enrolled in the Army ROTC program are provided textbooks and uniforms at no expense. Contracted non-scholarship students also receive the monthly stipend $420. For more information, see the website at goarmy.com/rotc.html.

Summer training. Students have the opportunity to attend several training events over the summer.

Advanced Camp — This five-week leadership exercise at Fort Knox, Kentucky, is a commissioning requirement. This is normally done between the junior and senior years. Travel, room, and board are provided free, and cadets are paid approximately $700.

Cultural Understanding and Language Program (CULP) Internships — Students are encouraged to spend a semester, special or summer session in academic studies abroad if feasible. Special incentives are available to further attract qualified students to these valuable programs.

Cadet Troop and Leadership Training Internships (CTLT) — CTLT Internships are leadership development opportunities for students who are placed with military organizations throughout the world to gain perspective and understanding on the role of the military officer.

Cadet Professional Field Training (CPFT) — Airborne, Air Assault, Mountain Warfare, Robin Sage (U.S. Special Forces), Helicopter Flight Training, and Sapper.

Other training opportunities exist for qualified applicants who are interested.

Commissioning and career opportunities. A commission in the U.S. Army is a distinctive honor earned through hard work, demonstrated commitment, and a desire to serve the nation. Post-graduate military education, usually starting within six months of graduation and commissioning and continuing through the officer's service career, begins with the basic officer leadership course followed by officer basic course that qualify new lieutenants in their specific branch of service. Education delays are available for critical specialties requiring postgraduate civilian education such as law and medical degrees.

Course credit. During the four-year program, Army ROTC students complete eight courses of military science plus associated labs. Academic credit varies by university.

Vanderbilt University College Credit: All AROTC courses count toward elective credit. See course descriptions below.

Information. Inquiries regarding enrollment in the Army ROTC program should be made to the Army ROTC Admissions Officer at (615) 322-8550 or (800) 288-7682 (1-800-VUROTC). Also see vanderbilt.edu/army.

Military Science Department

COMMANDING OFFICER Christine N. Kendzior

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Military Science Courses

During the four-year program, Army ROTC students complete eight courses of military science plus associated labs, and must complete an American Military History course and Advanced Camp.

FIRST YEAR

MS-PC 1210. Leadership and Personal Development. Leadership is one of the most compelling topics of our time, and might be one of the most important attributes for effectiveness in all levels of human endeavor. The success of one of the most admired and respected institutions in our country, the military, is founded upon the understanding and effective application of leadership, and the development of leaders. This course introduces students to the personal challenges and competencies that are critical to effective leadership. The focus is on developing basic knowledge and comprehension of leadership attributes and core leader competencies in a universal setting and exploring potential applications of these principles and practices at Vanderbilt, in the military and in the corporate world. [1]

MS-PC 1210L. Leadership and Personal Development Lab. Leader development is a continuous process of training, assessment and feedback with the goal of instilling and enhancing desirable behavior in individuals and organizations. Within the military science curriculum, this process is called the Leadership Development Program (LDP), modeled after the principles spelled out in Field Manual 22-100, *Army Leadership,* and is standardized both on campus and in Advanced Camp environments. The flexible methodology of LDP accommodates personalized, individual development at all levels of proficiency throughout the officer educational experience, from program entry to commissioning. The LDP includes basic leadership training, periodic assessment and counseling at both team and individual levels by experienced observers. Trends and deficiencies are identified and addressed with retraining and reassessment in a continuous cycle. Effective leader development is progressive, building on lessons learned and maximizing individual potential. This course introduces students to the leadership development process by providing structured leadership opportunities in a variety of training settings. Student performance in leadership roles is assessed and notable strengths and weaknesses are identified. A plan for improvement is discussed in detail during one-on-one counseling sessions. [1]

MS-PC 1230. Leadership and Personal Development II. What motivates others to follow a person is intriguing, inspiring and alluring. Through routine observation, we learn from leaders regardless of the setting (military, business, education, etc.). Leadership and Personal Development II provides an overview of leadership fundamentals such as setting direction, problem solving, listening and providing feedback. You will explore dimensions of leadership, values, attributes, skills, and actions in a military context through practical, hands-on, and interactive exercises. [1]

MS-PC 1230L. Leadership and Personal Development II Lab. Leader development is a continuous process of training, assessment and feedback with the goal of instilling and enhancing desirable behavior in individuals and organizations; this process is called the Leadership Development Program. Effective leader development is progressive, building on lessons learned and maximizing individual potential. This course introduces students to the leadership development process by providing structured leadership opportunities in a variety of training settings. A plan for improvement is discussed in detail during one-on-one counseling sessions. [1]

SOPHOMORE YEAR

One American Military History course, chosen from the following:

HIST 1730. The U.S. and the Cold War.

HIST 1740. The U.S. and the Vietnam War.

HIST 2720. World War II.

MS-PC 1510. American Military History: Principles of War.

PSCI 3272W. The War in Iraq, 2003–2011.

MS-PC 2150. Foundations of Leadership. MS-PC 2150 introduces the process of understanding and defining leaders in order to develop leadership skills appropriate for future commissioned Army officers. This class is broken down into five key skills development areas: 1) values and ethics, 2) personal development, 3) officership, 4) leadership, and 5) tactics and techniques. The class emphasizes individual leadership values and characteristics with a focus on Leadership Theory and Interpersonal Communications, Army Values, Troop Leading Procedures, Problem Solving, and Team Building in a military environment. [2]

MS-PC 2150L. Foundations of Leadership Lab. This lab builds upon the classroom topics in MS-PC 2150 and introduces the process of understanding and defining leaders in order to develop leadership skills appropriate for future commissioned Army officers. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. The lab emphasizes individual leadership values and characteristics with a focus on leadership theory and interpersonal communications, Army values, troop leading procedures, problem solving, and team building in a military environment. [1]

MS-PC 2160. Foundations of Tactical Leadership. MS-PC 2160 builds upon MS-PC 2150. The class is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During this class we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [2]

MS-PC 2160L. Foundations of Tactical Leadership Lab. MS-PC 2160L builds upon MS-PC 2150 and MS-PC 2150L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

JUNIOR YEAR

MS-PC 3110. Leadership and Problem Solving. This course builds upon your skills developed in MS-PC 2160 and continues to develop leadership, officership skills, self-awareness, and critical thinking skills through challenging scenarios related to small-unit tactical operations. Cadets receive systematic and specific feedback on their leadership values, attributes, skills, and actions. Prerequisite: MS-PC 1210, 1230, 2150, and 2160. [3]

MS-PC 3110L. Leadership and Problem Solving Lab. MS-PC 3110L builds upon MS-PC 3110 and MS-PC 2150L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

MS-PC 3120. Applied Team Leadership. Challenging scenarios related to small-unit tactical operations are used to develop self-awareness and critical thinking skills. Students receive systematic and specific feedback on their leadership values, attributes, skills, and actions. Prerequisite: MS-PC 3110. [3]

MS-PC 3120L. Applied Team Leadership Lab. MS-PC 3120L builds upon MS-PC 3120 and MS-PC 3110L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

SUMMER BETWEEN JUNIOR AND SENIOR YEAR

Cadet Leader Course (1 Cr) — All students pursuing a commission as an Army Officer must complete Advanced Camp during the summer between their junior and senior year. Students may apply for 1 credit hour of academic credit with the designation of interdisciplinary internship (INDS 3881). This course may be taken once and repeated once for a maximum of 2 credits on a Pass/Fail basis only.

SENIOR YEAR

MS-PC 4150. Leadership and Ethics. Students develop proficiency in planning, executing, and assessing complex operations, functioning as a member of a staff, and providing leadership-performance feedback to subordinates. Students are given situational opportunities to assess risk, make sound ethical decisions, and provide coaching and mentoring to fellow ROTC Cadets. Prerequisite: MS-PC 3120. [3]

MS-PC 4150L. Leadership and Ethics Lab. MS-PC 4150L builds upon MS-PC 4150 and MS-PC 3120L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

MS-PC 4160. Leadership in a Complex World. Students develop proficiency in leadership and management skills required of junior officers serving in military companies. The course further explores the dynamics of leading in complex situations of the contemporary operating environment and applies a cultural lens to problem solving. Students continue to gain leadership experience through situational opportunities, organizational projects, and coaching and mentoring fellow ROTC Cadets.

MS-PC 4160L. Leadership in a Complex World Lab. MS-PC 4160L builds upon MS-PC 4160 and MS-PC 4150L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

Naval Reserve Officers' Training Corps (NROTC)

Naval Science

Naval Science Courses

The Naval Reserve Officer Training Corps (NROTC) unit at Vanderbilt conducts the Naval Officer Education program.

Challenging academic courses and experience-building events prepare a select group of highly accomplished students for the opportunity to serve their country as a Navy or Marine Corps officer and receive an education. The primary focus of the NROTC program is to develop the most capable leaders possible by building upon the academic strength of Vanderbilt and providing essential military and leadership education.

Students participate in the NROTC unit in the scholarship program, the college program, or the naval science program. College Program students take the prescribed naval science course each semester, participate weekly in naval science lab, and engage in summer training programs after each academic year. The NROTC College Program is identical to the scholarship program except for tuition financial benefit and that students only participate in summer training upon completion of their junior academic year. Also, any Vanderbilt student may take any or all of the naval science courses without participating in naval science lab or summer training.

Scholarship students receive tuition, fees, uniforms, $375 per semester for textbooks, and a monthly stipend beginning at $250 for freshmen and increasing to $400 for seniors. Vanderbilt may provide scholarship students with up to a $6,000-per-year stipend toward room and board. College Program students are provided uniforms, textbooks for naval science courses, and a monthly stipend of $350 upon commencement of their junior year with approval by higher authority based on academic performance and military aptitude.

Scholarships. Students can earn scholarships in several ways. Four-year scholarships are determined by national competition among high school seniors and graduates. Based on the national ranking, students may be awarded a scholarship that covers full tuition. To be eligible, applicants must have less than 30 semester hours of college credit. College Program students can also be nominated for three- and two-year scholarships by the NROTC unit. These nominations are based on the students' academic and military performance at the college level. Sophomores not enrolled in the College Program are eligible to apply for the two-year NROTC scholarship program. This is a national competition and application is made through the NROTC unit.

Service obligation. For most students at the beginning of their sophomore year, should they choose to continue with the NROTC program, Navy option scholarship students incur a minimum service obligation of five years active duty, and Marine option scholarship students incur a minimum service obligation of four years of active duty, to be served upon graduation or withdrawal from the program. College Program students incur a three-year active duty commitment upon graduation or withdrawal from the program. Additional requirements may be required for specific job assignments.

Summer training. Summer training for three to four weeks is conducted aboard naval vessels and naval shore stations after each of the first three academic years. Scholarship students are normally required to participate each year. All scholarship and College Program midshipmen are required to participate in summer training prior to their final academic year.

Course credit. During the four-year program, NROTC Navy-option students are required to complete eight courses (24 hours) of naval science, and Marine-option students are required to complete six courses (18 hours) of naval science. Academic credit awarded varies by course and is outlined in the course descriptions below.

Required Courses for Navy/Marine Scholarship. The following courses are required for students on scholarship:

- Calculus (Navy option only) (6 credits minimum): Mathematics 1200–1201, or 1300–1301 completed by the end of the sophomore year.
- Physics (Navy option only) (6 credits): 1501–1502 or 1601–1602 completed by the end of the junior year.
- English (6 credits): Two semesters of any English course or courses containing a designated writing component.
- American History/National Security Policy (3 credits): Contact the Naval ROTC unit for a listing of courses fulfilling this requirement.
- World Culture/Regional Studies (Navy option only) (3 credits): Contact the Naval ROTC unit for a listing of courses fulfilling this requirement.

Information. Inquiries regarding enrollment in the Naval ROTC program should be made to the Naval ROTC unit recruiting officer at (615) 322-2671, or by contacting a local Navy or Marine Corps recruiting station.

Admission to the program is open to both men and women. Physical qualification to Naval Service standards is required.

Naval Science

COMMANDING OFFICER Brian Erickson

EXECUTIVE OFFICER Brian Fremming

NAVAL INSTRUCTORS Joseph London, Renny Ignacio

MARINE INSTRUCTOR Ronnie Fielder

Naval Science Courses

For Navy-option NROTC students, the following naval science courses are required for commissioning: NS 1100, HIST 1690, NS-PC 2410, ES 3231, ES 3230, ES 3232, ES 4233, and NS-PC 4242 and their appropriate labs. For Marine-option NROTC students, the following naval science courses are required for commissioning: NS 1100, HIST 1690, NS-PC 2410, HIST 1691, HIST 1693, and NS-PC 4242 and their appropriate labs.

FIRST YEAR

NS 1100

HIST 1690

SOPHOMORE YEAR

NS-PC 2410

ES 3231

JUNIOR YEAR

ES 3230

ES 3232

SENIOR YEAR

ES 3233

NS-PC 4242

The Marine option courses listed below are taught in the spring, rotating on a yearly basis. They are taken in the sophomore and junior year.

HIST 1691

HIST 1693

Interdisciplinary Centers, Institutes, and Research Groups

Vanderbilt is home to more than 85 centers and institutes that work to tackle major challenges and meet important societal needs by bringing together faculty from a broad range of disciplines and producing cutting-edge research. Below is a sampling of Vanderbilt's interdisciplinary initiatives. For more information, see research.vanderbilt.edu/centers-and-institutes-at-vanderbilt.

The Center for Integrative and Cognitive Neuroscience investigates the relationship between brain function,

behavior, and cognition, and promotes the development of new technologies like advanced prosthetics and autonomous robots.

The Center for Latin American Studies works to advance knowledge about and understanding of the region's history, culture, political economy, and social organization. as.vanderbilt.edu/clas/

The Frist Center for Autism and Innovation at Vanderbilt University School of Engineering brings engineers, business scholars, and disabilities researchers together with experts in neuroscience and education to understand, maximize, and promote neurodiverse talent and to respond to opportunities for innovation in technology and in workplace practices. With engagement across academia, government, business, and nonprofit organizations, as well as the clinical, vocational, and self-advocacy domains, the center works to build a true community-based approach that improves lives, organizations, and society. vanderbilt.edu/autismandinnovation/

The Max Kade Center for European and German Studies fosters an international perspective on issues relating to Europe and transatlantic relations and seeks to prepare students for international careers or advanced study. as.vanderbilt.edu/europeanstudies/

The Robert Penn Warren Center for the Humanities promotes interdisciplinary research and study in the humanities, social sciences and natural sciences. Members of the Vanderbilt community representing a wide variety of specializations take part in the center's programs, which are designed to intensify and increase interdisciplinary discussions of academic, social, and cultural issues. vanderbilt.edu/rpw_center/

The Vanderbilt Brain Institute promotes and facilitates the discovery efforts of Vanderbilt neuroscientists, the training of undergraduate and graduate students, and the coordination of public outreach in brain sciences. Research endeavors in the VBI include more than five hundred faculty, students, and staff from departments, centers, and institutes across campus who engage in neuroscience-directed research, training, and clinical service. medschool.vanderbilt.edu/brain-institute/

The Vanderbilt Institute for Surgery and Engineering creates, develops, implements, and evaluates solutions to complex interventional problems. Physicians, engineers, and computer scientists work together to improve patient care with surgical innovation through engineering. Central to the mission of the institute is the translation of methods, techniques, and devices from the laboratory to the patient. vanderbilt.edu/vise/

The Vanderbilt Institute for Energy and Environment elucidates the relationships among individual, institutional, and societal choices for energy production and use, and the impacts and benefits of these choices on the environment and health through links with climate, water quality, economics, social psychology, and natural resources. A crucial part of its mission is to train the next generation of leaders in the energy and environmental arena. vanderbilt.edu/viee/

The Vanderbilt Institute for Global Health builds capacity through interdisciplinary global health education and training programs, conducts implementation science and research, and provides technical assistance service to government and civil sector organizations in other countries. As a leader in international education and research, VIGH seeks to improve health and well-being of people living in low-resource settings. vumc.org/global-health/

The Vanderbilt Institute for Integrative Biosystems Research and Education fosters and enhances interdisciplinary research in the biophysical sciences and bioengineering at Vanderbilt, integrated with a strong focus on undergraduate, graduate, and postdoctoral education. VIIBRE's mission is to invent the tools and develop the skills that are required to understand biological systems across spatiotemporal scales. vanderbilt.edu/viibre/

The Vanderbilt Institute of Chemical Biology provides research and training in the application of chemical approaches to the solution of important biomedical problems, harnessing the power of chemistry to improve human health. medschool.vanderbilt.edu/vicb/

The Vanderbilt Institute of Nanoscale Science and Engineering engages in theoretical and experimental research in science and engineering at the nanoscale (from one millionth to one billionth of a meter in size). VINSE supports an extensive infrastructure of materials fabrication and analytical facilities for research in nanoscale science and engineering. vanderbilt.edu/vinse/

The Vanderbilt Kennedy Center for Research on Human Development facilitates discoveries and best practices that make positive differences in the lives of persons with disabilities and their families through research, training, services, and dissemination. Nationally, it is among fourteen Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Centers, sixty-seven national University Centers for Excellence in Developmental Disabilities, fifty-two Leadership Education in Neurodevelopmental Disabilities training programs, and includes the Treatment and Research Institute for Autism Spectrum Disorders. Research, practicum, and clinical experiences are available to trainees. vkc.vumc.org/vkc/

The Vanderbilt University Institute of Imaging Science aims to support and integrate advances in physics, engineering, chemistry, computing, and other basic sciences for the development and application of new and enhanced imaging techniques to address problems and stimulate new research directions in biology and medicine, in health and disease.

The Wond'ry supports immersive experiences for students and interdisciplinary projects for faculty--from all schools and colleges--who are interested in innovation and entrepreneurship. In addition to connecting various resources across the university, the center serves as a common space for students to develop and test ideas alongside their peers with mentorship from faculty, alumni, corporate partners, the Nashville entrepreneurial community, and beyond. Programming, seminars, and workshops help students from all disciplines grow their ventures at any stage of development. vanderbilt.edu/thewondry/

Admission

Admission

Academic Preparation

Application Procedure - First-Year Applicants

Application Procedure - Transfer Applicants

International Applicants

The admissions process for first-year applicants to Vanderbilt is holistic in nature and based on students' academic records and personal accomplishments. All available information is considered, including secondary school academic record, evidence of academic maturity and independence, extracurricular activities, contributions to and impact on the school and community, scores on standardized tests if submitted (see #3 in Application Procedure below), and letters of recommendation.

The admissions process supports the university's mission of scholarship and discovery and is designed to select a

student body with exceptional academic talent, high standards of personal character, serious educational aims, and wide-ranging backgrounds, experiences, and perspectives. Policies that govern the selection process have been set by the vice provost for university enrollment affairs. Please refer to the nondiscrimination statement which appears earlier in this catalog.

Admission to the four undergraduate schools is managed by the Office of Undergraduate Admissions.

Prospective students are encouraged to investigate the university by visiting the campus, exploring the Office of Undergraduate Admissions website, connecting via social media, and attending college fairs and other programs hosted by Vanderbilt admissions officers across the country, around the world, and online. Admissions staff are available to answer questions, assist with understanding campus visit opportunities, provide additional information about degree programs, and link visitors with appropriate campus offices and members of the university community.

Academic Preparation

Every candidate for admission must present an official transcript of work completed in high school. While our admissions process is holistic, most successful candidates will present a curriculum that includes the equivalent of five academic subjects each year for four years. Recommended course work includes 4 units of English, 4 units of mathematics, 4 units of natural science, 2 units of foreign language, 2 units of social science/humanities, and 4 units of additional course work in these areas, or other academic courses such as engineering science, computer science, social science or natural science research, or advanced work in the humanities. Close attention will be paid to the rigor of course work presented. It is highly recommended that candidates applying to the School of Engineering have taken calculus, calculus-based physics, and chemistry.

Most successful candidates will have meaningfully engaged with the academic, intellectual, social, and leadership opportunities available in the context of their high schools and communities. In exceptionally rare cases, students may be considered for admission before completing four years of high school. In these cases, the Admissions Committee considers especially evidence of maturity and readiness for an immersive, residential college experience.

Application Procedure — First-year Applicants

1. Applicants must apply to Vanderbilt through Coalition, powered by Scoir, the Common Application, or the QuestBridge Application. Applications for admission may be accessed online at admissions.vanderbilt.edu/apply.
2. Applicants must arrange for their high school to submit an official transcript and their School Report to the Office of Undergraduate Admissions via one of the application portals.
3. For students applying for fall 2024 entry, Vanderbilt is test optional. Scores from the ACT or SAT are not required to be considered for admission. Applicants who want their test scores to be considered may self-report them on the application or may have official scores sent to Vanderbilt by the testing agency. Score reports appearing on official high school transcripts are accepted as official. Official test scores will be required for students who applied with testing and who were admitted and enroll.
4. A $50 nonrefundable application fee, or fee waiver for qualified students, is required.
5. On the application for admission, select the decision plan for which you wish to be considered: Early Decision I, Early Decision II, or Regular Decision.
    - Early Decision plans are designed for students whose first-choice college is Vanderbilt. These plans are binding: if offered admission, students agree to attend Vanderbilt and to withdraw all other applications for admission. In addition to the other application requirements, the Early Decision Agreement must be submitted. Signatures are required from the applicant, the applicant’s parent/guardian, and the high school counselor.
    - The Regular Decision plan is designed for students who are considering many college options and who wish to compare offers of admission and financial aid before committing to one college. Applicants will be admitted, denied, or offered a spot on the waitlist. Waitlisted students may be offered admission later in the spring.
    - Deadlines:
        - Early Decision I — submit application by November 1
        - Early Decision II — submit application by January 1
        - Regular Decision — submit application by January 1
6. Blair School of Music applicants are required to follow the audition protocol detailed on the Blair website

(blair.vanderbilt.edu/admissions/apply.php). Selected applicants will be invited to audition in person on campus.

Application Procedure — Transfer Applicants

Admission of transfer students to Vanderbilt is competitive and holistic. The priority deadline to submit the transfer application is March 15. It is Vanderbilt's practice to offer transfer admission only for the fall semester.

1. Apply online through Coalition, powered by Scoir, or through the Common Application Transfer Application.
2. For students applying for fall 2024 entry, Vanderbilt is test optional. Scores from the ACT or SAT are not required to be considered for admission. Applicants who want their test scores to be considered may self-report them on the application or may have official scores sent to Vanderbilt by the testing agency. Score reports appearing on official high school transcripts also are accepted as official. Official test scores will be required for students who applied with testing and who were admitted and enroll.
3. A $50 nonrefundable application fee, or fee waiver for qualified students, is required.
4. Provide a fully complete Transfer College Report and be in good academic and social standing at the institution last attended.
5. Provide a list of courses in which the student is currently enrolled.
6. Provide an official secondary school transcript.
7. Provide official transcripts from each college attended.
8. Submit two academic letters of recommendation.
9. Agree to attend a Vanderbilt undergraduate program for at least four semesters (60-plus hours) of full-time work (63-plus hours for Blair School of Music students). Two of these semesters (30-plus hours) must be within the senior year.
10. Blair School of Music applicants are required to follow the audition protocol detailed on the Blair website (blair.vanderbilt.edu/admissions/apply.php). Selected applicants will be invited to audition in person on campus.

International Applicants

For the purpose of admission, the term "international applicants" refers to students who are not citizens of the United States or who are not eligible non-citizens. International applicants must complete all admission requirements of the university. (See "Application Procedure" above, for first-year and for transfer applicants.)

Applicants whose first language or language of instruction is not English are required to submit the results of the Test of English as a Foreign Language (TOEFL) iBT (including Home and Paper editions) TOEFL Essentials, the International English Language Testing Service (IELTS), the Pearson Test of English Academic (PTE Academic), the Duolingo English Test (DET), or the Cambridge English C1 Advanced or C2 Proficiency. This testing requirement may be waived if a student has scored above a 26 on the ACT English section or above 630 on the SAT Evidence-based Reading and Writing section. Minimum recommended scores for Vanderbilt are 100 TOEFL iBT, 10.5 on the TOEFL Essentials, 7.0 on the IELTS, 70 on the PTE Academic, 130 on the Duolingo English Test, and 185 on the Cambridge English C1 Advanced or C2 Proficiency.

Advanced Credit

Advanced Credit

College Entrance Exams

Advanced Placement Credit Policy

International Baccalaureate Credit Policy

Advanced Placement Examination Grades Accepted by Various Departments at Vanderbilt for Advanced Placement with Credit

International Baccalaureate Scores Accepted by Various Departments at Vanderbilt for Advanced Credit

Pre-College Summer School Program

Credit for Previous College Work

Advanced Credit

Honors courses and other accelerated study in high school are excellent preparation for Vanderbilt. The well-established advanced-placement policy endeavors to recognize exceptional high school preparation, to avoid requiring first-year students to take courses clearly mastered in high school, and to encourage students to begin their college learning experience at the level most appropriate to their preparation. Advanced placement may be granted on the basis of good performance on the College Board Advanced Placement Examinations, on International Baccalaureate tests, or, in some cases, on placement tests given by Vanderbilt. Credit may also be awarded for the British G.C.E. "A" level examinations, the Advanced International Certificate of Education (AICE), the Cambridge Pre-U diploma, and similar tests, such as the French *baccalauréat,* the German *abitur,* or the Swiss *maturité* examinations. To qualify for credit for the AICE examinations or individual A-level examinations, students must have achieved an *A*, A,* or *B* thereon. More information on international exam credit is available at registrar.vanderbilt.edu/international-examinations.

College Entrance Exams

Students may not take college entrance exams after they begin their enrollment at Vanderbilt University for the purpose of course placement or academic credit. This applies to SAT, ACT, Advanced Placement, International Baccalaureate, and any similar international exams.

Advanced Placement Credit Policy

Advanced Placement Examination grades accepted for advanced placement with credit by the various departments at Vanderbilt are listed below. At the determination of individual departments, Advanced Placement Examination grades with a score of 4 or 5 may be accepted for credit. The amount of credit that may be awarded corresponds to the course work waived. Advanced Placement credit does not affect the Vanderbilt grade point average.

Students of the College of Arts and Science are limited to a total of 18 credit hours earned by any combination of advanced placement, international baccalaureate credit, advanced international credit, and credit by departmental examination, counting toward the minimum number of hours required toward the degree. For students in the College of Arts and Science, no form of advanced placement credit can be used to fulfill the Achieving Excellence in Liberal Education (AXLE) requirements.

International Baccalaureate Credit Policy

International Baccalaureate test scores accepted for advanced credit by the various departments at Vanderbilt are listed below. Students who have taken tests in other areas may submit their scores to the Office of Academic Services for evaluation by the appropriate departments. Credits are awarded for exams taken at the higher level only. The amount of credit that may be awarded is subject to the same limitations as credit for Advanced Placement.

Advanced Placement Examination Grades Accepted by Various Departments at Vanderbilt for Advanced Placement with Credit

AP Exam	AP Score	Vanderbilt Course or Credit Equivalent	Credit Hours
Art			
Art History	4 or 5	HART 1100: History of Western Art I	3
		HART 1105: History of Western Art II	3
Studio Art: 2-D Design	4 or 5	ARTS No Equivalent: Art Studio	3
Studio Art: 3-D Design	4 or 5	ARTS No Equivalent: Art Studio	3
Studio Art: Drawing	4 or 5	ARTS No Equivalent: Art Studio	3

Computer Science			
Computer Science A	5	CS 1101: Programming & Problem Solving	3
Computer Science Principles	5	CS 1000: The Beauty and Joy of Computing	3
Economics			
Macroeconomics	4 or 5	ECON 1010: Principles of Macroeconomics	3
Microeconomics	4 or 5	ECON 1020: Principles of Microeconomics	3
English			
English Language & Composition	4 or 5	ENGL 1300W: Intermediate Composition	3
English Literature & Composition	4 or 5	ENGL 1220W: Drama Forms and Techniques	3
		ENGL 1230W: Literature and Analytical Thinking	3
Government and Politics			
Government & Politics: Comparative	4 or 5	PSCI 1101: Introduction to Comparative Politics	3
Government & Politics: United States	4 or 5	PSCI 1100: Introduction to American Government and Politics	3
History			
European History	4 or 5	HIST No Equivalent: European History	3
United States History	4 or 5	HIST No Equivalent: U.S. History	3
World History	4 or 5	HIST No Equivalent: World History	3
Human Geography (No credit)			
Languages			
Chinese Language and Culture	4	CHIN 2201: Intermediate Chinese I	5
Chinese Language and Culture	5	CHIN 2201: Intermediate Chinese II	5
French Language	4 or 5	FREN 2203: Contemporary Francophone Cultures	3
		FREN 2501W: French Composition and Grammar	3
French Literature	4 or 5	FREN 2203: Contemporary Francophone Cultures	3
		FREN No Equivalent: French Literature	3
German Language	4 or 5	GER 2201: Intermediate German I	3
		GER 2202: Intermediate German II	3
Italian Language and Culture	4 or 5	ITA 2203: Italian Journeys	3
		ITA 2501W: Grammar and Composition	3
Japanese Language and Culture	4	JAPN 2201: Intermediate Japanese I	3

Japanese Language and Culture	5	JAPN 2202: Intermediate Japanese II	3
Latin	4 or 5	LAT 2202: Intermediate Latin: Poetry	3
Spanish Language or Literature (beyond Fall 2021 admission)	4	SPAN 2010: Non-equivalent credit; convertible to SPAN 2204 with proctored departmental placement score of 410 or above.	3
Spanish Language (beyond Fall 2021 admission)	5	SPAN 2012: Non-equivalent credit; convertible to SPAN 3302 with proctored departmental placement score of 460 or above.	3
Spanish Literature (beyond Fall 2021 admission)	5	SPAN 2011: Non-equivalent credit; convertible to SPAN 3301W with proctored departmental placement score of 460 or above.	3
Mathematics			
Calculus AB	5	MATH 1300: Accelerated Single-Variable Calculus I	4
Calculus BC & AB Subscore	3 & 5	MATH 1300: Accelerated Single-Variable Calculus I	4
Calculus BC & AB Subscore	4 & 5	MATH 1300: Accelerated Single-Variable Calculus I	4
Calculus BC	5	MATH 1300: Accelerated Single-Variable Calculus I MATH 1301: Accelerated Single-Variable Calculus II	4 4
Music			
Music Theory	5	MUTH 1200: Survey of Music Theory	3
No course credit awarded for music majors.			
Psychology			
Psychology	5	PSY 1200: General Psychology	3
Sciences			
Biology	4 or 5	BSCI 1100: Biology Today BSCI 1100L: Biology Today Laboratory	3 1
Chemistry	5	CHEM 1601: General Chemistry CHEM 1601L: General Chemistry Laboratory CHEM 1602: General Chemistry CHEM 1602L: General Chemistry Laboratory	3 1 3 1
Environmental Science	4 or 5	EES No Equivalent	3
Physics 1	5	PHYS 1010: Introductory Physics PHYS 1010L: Introductory Physics Lab	3 1
None of the credits awarded for Physics 1 shall count toward the major or the minor in physics. No credit awarded for engineering students.			
Physics 2	5	PHYS No Equivalent	4
None of the credits awarded for Physics 2 shall count toward the major or the minor in physics. No credit awarded for engineering students.			
Physics B	5	PHYS 1010: Introductory Physics PHYS 1010L: Introductory Physics Lab	3 1
No credit awarded for engineering students; not to be awarded if student also has credit for Phys 1601/1601L or Phys 1602/1602L.			
Physics C: Electricity & Magnetism	5	PHYS 1602: General Physics II	3

		PHYS 1602L: General Physics II Laboratory	1
Physics C: Mechanics	5	PHYS 1601: General Physics I	3
		PHYS 1601L: General Physics I Laboratory	1
Statistics			
Statistics	4 or 5	MATH 1010: Probability and Statistical Inference	3
		No credit awarded for engineering students.	

International Baccalaureate Test Scores Accepted by Various Departments at Vanderbilt for Advanced Credit

IB Certificate Subject	IB Score	Vanderbilt Course or Credit Equivalent	Credit Hours
Biology	6 or 7	BSCI 1100: Biology Today	3
		BSCI 1100L: Biology Today Laboratory	1
Chemistry (Higher)	6 or 7	CHEM 1601: General Chemistry	3
		CHEM 1601L: General Chemistry Laboratory	1
		CHEM 1602: General Chemistry	3
		CHEM 1602L: General Chemistry Laboratory	1
Chinese A: Language and Literature (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Chinese A: Literature (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Chinese B: Mandarin (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Economics (Higher)	6 or 7	ECON 1010: Macroeconomics	3
		ECON 1020: Microeconomics	3
English A: Language and Literature (Higher)	6 or 7	ENGL No Equivalent: Elective Credit	3
English A: Literature (Higher)	6 or 7	ENGL No Equivalent: Elective Credit	3
French A: Language and Literature (Higher)	6 or 7	FREN 2203: Intermediate French Language and Cultures	3
		FREN No Equivalent: Elective Credit	3
French A: Language	6 or 7	FREN 2203: Intermediate French Language and Cultures	3
		FREN No Equivalent: Elective Credit	3
French B (Higher)	6 or 7	FREN 2203: Intermediate French Language and Cultures	3
		FREN No Equivalent: Elective Credit	3
German A: Language and Literature (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
German A: Literature (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
German B (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
History (Higher)	6 or 7	HIST No Equivalent: History Elective	3
Japanese A: Language and Literature (Higher)	6 or 7	JAPN No Equivalent	3
Japanese A: Literature (Higher)	6 or 7	JAPN No Equivalent	3
Japanese B (Higher)	6 or 7	JAPN No Equivalent	3

Korean A: Language and Literature (Higher)	6 or 7	KOR No Equivalent	3
Korean A: Literature (Higher)	6 or 7	KOR No Equivalent	3
Korean B (Higher)	6 or 7	KOR No Equivalent	3
Latin (Higher)	6 or 7	LAT 2201: Intermediate Latin: Prose	3
		LAT 2202: Intermediate Latin: Poetry	3
Mathematics: Applications and Interpretation (Higher)	6 or 7	MATH 1010: Probability and Statistical Inference	3
		MATH 1100: Survey of Calculus	4
	No credit for MATH 1010 for engineering students.		
Mathematics: Analysis and Approaches (Higher)	6 or 7	MATH 1010: Probability and Statistical Inference	3
		MATH 1300: Accelerated Single-Variable Calculus I	4
	No credit for MATH 1010 for engineering students.		
Music (Higher)	6 or 7	MUSL No Equivalent (may count toward a music major)	3
Physics (Higher)	7	PHYS 1601: General Physics I	3
		PHYS 1601L: General Physics Laboratory I	1
		PHYS 1602: General Physics II	3
		PHYS 1602L: General Physics Laboratory II	1
Psychology (Higher)	6 or 7	PSY 1200: General Psychology	3
Russian A: Language and Literature (Higher)	6 or 7	RUSS No Equivalent	3
Russian A: Literature	6 or 7	RUSS No Equivalent	3
Russian B (Higher)	6 or 7	RUSS No Equivalent	3
Spanish A: Language and Literature (Higher)	6 or 7	SPAN 2203: Intermediate Spanish	5
Spanish A: Literature (Higher)	6 or 7	SPAN 3302: Spanish for Oral Communication	3
Spanish B (Higher)	6 or 7	SPAN No Equivalent	3
Visual Arts (Higher)	6 or 7	ARTS No Equivalent: Visual Arts	3
		ARTS No Equivalent: Visual Arts	3

IB Certificate Subject	IB Score	Vanderbilt Course or Credit Equivalent	Credit Hours
Biology (Higher)	6 or 7	BSCI 1100: Biology Today	3
		BSCI 1100L: Biology Today Laboratory	1
Chemistry (Higher)	6 or 7	CHEM 1601: General Chemistry	3
		CHEM 1601L: General Chemistry Laboratory	1
		CHEM 1602: General Chemistry	3
		CHEM 1602L: General Chemistry Laboratory	1
Chinese A: Language and Literature (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Chinese A: Literature (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3

Chinese B: Mandarin (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Economics (Higher)	6 or 7	ECON 1010: Principles of Macroeconomics	3
		ECON 1020: Principles of Microeconomics	3
English A: Language and Literature (Higher)	6 or 7	ENGL No Equivalent: Elective Credit	3
English A: Literature (Higher)	6 or 7	ENGL No Equivalent: Elective Credit	3
French A: Language and Literature (Higher)	6 or 7	FREN 2203: Intermediate French Language and Cultures	3
		FREN No Equivalent: Elective Credit	3
French A: Language	6 or 7	FREN 2203: Intermediate French Language and Cultures FREN No Equivalent: Elective Credit	3 3
French B (Higher)	6 or 7	FREN 2203: Intermediate French Language and Cultures FREN No Equivalent: Elective Credit	3 3
German A: Language and Literature (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
German A: Literature (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
German B (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
History (Higher)	6 or 7	HIST No Equivalent: History Elective	3
Japanese A: Language and Literature (Higher)	6 or 7	JAPN No Equivalent	3
Japanese A: Literature (Higher)	6 or 7	JAPN No Equivalent	3
Japanese B (Higher)	6 or 7	JAPN No Equivalent	3
Korean A: Language and Literature (Higher)	6 or 7	KOR No Equivalent	3
Korean A: Literature (Higher)	6 or 7	KOR No Equivalent	3
Korean B (Higher)	6 or 7	KOR No Equivalent	3
Latin (Higher)	6 or 7	LAT 2201: Intermediate Latin: Prose	3
		LAT 2202: Intermediate Latin: Poetry	3
Mathematics: Applications and Interpretation (Higher)	6 or 7	MATH 1010: Probability and Statistical Inference MATH 1100: Survey of Calculus	3 4
No credit awarded for engineering students.			
Analysis and Approaches (Higher)	6 or 7	MATH 1010: Probability and Statistical Inference	3
		MATH 1300: Accelerated Single-Variable Calculus I	4
No credit for MATH 1010 for engineering students.			
Music (Higher)	6 or 7	MUSL No Equivalent (may count toward a music major)	3
Physics (Higher)	7	PHYS 1601: General Physics I	3
		PHYS 1601L: General Physics Laboratory I	1
		PHYS 1602: General Physics II	3
		PHYS 1602L: General Physics Laboratory II	1
Psychology (Higher)	6 or 7	PSY 1200: General Psychology	3

Russian A: Language and Literature (Higher)	6 or 7	RUSS No Equivalent	3
Russian A: Literature	6 or 7	RUSS No Equivalent	3
Russian B (Higher)	6 or 7	RUSS No Equivalent	3
Spanish A: Language and Literature (Higher)	6 or 7	SPAN 2203: Intermediate Spanish	5
Spanish A: Literature (Higher)	6 or 7	SPAN 3302: Spanish for Oral Communication	3
Spanish B (Higher)	6 or 7	SPAN No Equivalent	
Visual Arts (Higher)	6 or 7	ARTS No Equivalent: Visual Arts	3
		ARTS No Equivalent: Visual Arts	3

Pre-College Summer School Program

Upon completion of the sophomore or junior year in high school, students may enroll, at the freshman level, for regular work in the Vanderbilt summer session.

The following conditions must be met: (a) students must be in the upper 25 percent of their high school class and be recommended by their principal or counselor; (b) courses taken in the Vanderbilt summer session must be chosen by the student in consultation with his or her high school counselor and the director of the Division of Unclassified Studies so as to supplement and not overlap the total high school program. A student may take two courses in any one summer, or three courses by special authorization of the director of the Division of Unclassified Studies.

Course work done at Vanderbilt by a pre-college student may count toward the high school diploma and as part of the entrance requirements for regular admission to Vanderbilt. All course work done at Vanderbilt by pre-college students will be credited toward the degree for those who may subsequently matriculate at Vanderbilt, unless the course work is required for high school graduation. Admission to the pre-college summer school program does not admit a student as a regular entering freshman, nor does it commit the university to a student's admission.

Credit for Previous College Work

Entering first-year students who have taken college work in high school through dual enrollment or concurrent enrollment programs, or during summers prior to their offer of admission to Vanderbilt, must indicate such work on the undergraduate admission application. An official transcript showing any prior college work must be provided. Once all required documentation has been received, the coursework will be reviewed to determine whether it is eligible for credit at Vanderbilt.

Students should submit all required documentation for review before the first day of classes of their freshman year.

Credit will be awarded only if:

1. A course is regularly offered by an accredited two-year or four-year college or university. For domestic schools, the school must be regionally accredited; for international schools, the school must have country-specific accreditation.
2. The teacher was a regular faculty member of that college or university.
3. A majority of the students in the course were degree-seeking college students.

Additional requirements and guidelines regarding pre-freshman credit are available at registrar.vanderbilt.edu/transfer-credit.php.

The College of Arts and Science and Peabody College usually do not award credit for work at other colleges in the summer immediately preceding the student's first semester at Vanderbilt. Summer work elsewhere will be accepted for credit only if an unusual educational opportunity can be demonstrated and if the courses sought are as rigorous as courses offered at Vanderbilt. Approval for work to be taken elsewhere must be obtained in advance from the appropriate dean.

College of Arts and Science. In no case may credits completed elsewhere after the student has been offered admission by the College of Arts and Science satisfy AXLE requirements.

International Students

Vanderbilt has a large international community representing more than 95 countries. The university welcomes the diversity international students bring to the campus and encourages academic and social interactions at all levels.

Admission. See International Applicants section.

English Language Instruction. Students wishing to focus on improving their English language use for the context of the U.S. academic setting may take classes and participate in programming at the Vanderbilt English Language Center to support their academic success. The ELC's courses include *write*ELC, Academic Speaking, and Pronunciation. Throughout the academic year, academic workshops and one-to-one consultations for speaking and writing are also available through the ELC. Entering students may be required to take language support courses concurrently with their academic courses at the ELC. The ELC is located at 1208 18th Avenue South. For information about the ELC's programming, see the "English Language Center" section or visit vanderbilt.edu/elc.

Financial Resources. To meet requirements for entry into the United States for study, applicants must demonstrate that they have sufficient financial resources to meet the expected costs of their educational program. Applicants must provide documentary evidence of their financial resources before visa documents can be issued.

United States laws and regulations restrict the opportunity for international students in a non-immigrant visa status to be employed. Undergraduate international students are allowed to work on campus for nineteen hours per week while school is in session. Students may be allowed to work off campus only under special circumstances and after approval from ISSS. Many spouses and dependents of international students are not allowed to be employed while in the United States.

Limited need-based financial aid is available to students who are neither citizens nor permanent residents of the United States, and are considered to be international students in Vanderbilt's admissions process. Our admissions process is need-aware for international students; international students who demonstrate that they can afford the cost of attending Vanderbilt will be given preferential treatment. To apply for need-based financial aid, international students are required to submit the College Scholarship Service (CSS) Financial Aid Profile. Based upon an evaluation of academic qualities, financial need, and availability of resources, an international student may be considered for need-based financial assistance. International students who apply for need-based financial aid will be admitted only if they are competitive in our holistic review and if Vanderbilt is able to provide adequate financial assistance.

International Student Health Insurance. International students are required to have health insurance throughout their academic program and are automatically enrolled in the Vanderbilt-approved health insurance plan for international students. For information concerning the limits, exclusions, and benefits of this insurance coverage, please contact the Student Health Center.

Transfer Credit

Work presented for transfer must be from an accredited college and is subject to evaluation in light of the degree requirements of this university. For domestic schools, the school must be regionally accredited; for international schools, the school must have country-specific accreditation.

Work transferred to Vanderbilt from another institution will not carry with it a grade point average. No course in which a grade below *C*– was received will be credited toward a degree offered by the university.

College of Arts and Science. Transfer students must complete at least 60 hours of work in the College of Arts and Science. Credit earned as a degree-seeking student at another university may be used to fulfill AXLE requirements.

Blair School of Music. In addition to an application for admission, transfer students applying to Blair must also submit a Blair School of Music Application, which includes a required prescreening video, by the March 15 deadline. Selected applicants will be invited to audition in person. See the Blair website for information and instructions about the Blair admissions process. Transfer students will be assigned a level of program study based on the entrance audition. Credit for music courses may be granted following an examination at Blair. Credit for non- music courses is subject to evaluation by the university. Transfer students must complete at least 63 hours at Blair.

School of Engineering. Transfer students must complete at least 60 hours of work at Vanderbilt.

Peabody College. Transfer students must complete at least 60 hours of work at Peabody. Two of the four semesters in residence must be the last two semesters of the student's degree program.

Prior Degrees

It is the policy of Vanderbilt University to verify prior educational credentials for all admitted students who intend to matriculate. All matriculated students must provide official copies of transcripts and any other required supporting documentation to Vanderbilt University as part of the prior degree verification process. The Office of the University Registrar will review transcripts and other supporting documentation for authenticity and to confirm degrees earned prior to matriculation at Vanderbilt. Offers of admission are contingent on a student's providing the required documentation. Undergraduate students who are not able to provide evidence of prior degrees will not be permitted to register for subsequent terms and may be subject to dismissal from the university.

Intra-University Transfer

Undergraduate students in the College of Arts and Science, Blair School of Music, School of Engineering, and Peabody College may request a transfer between the schools. Students are eligible for intra-university transfer after having been enrolled on a full-time basis at Vanderbilt for two semesters. Students who transferred to Vanderbilt from another institution are eligible for intra-university transfer after having completed at least one full semester at Vanderbilt and having achieved sophomore standing. To be eligible for transfer, students must meet the requirements of the school they wish to enter.

Applications are available on the Office of the University Registrar website, registrar.vanderbilt.edu/intra-university-transfers/, and should be submitted to the Office of the University Registrar by the required deadlines listed on this webpage.

Students seeking transfer between schools within the university must meet the following requirements: (a) a student who has been in residence for two regular semesters must have a minimum of 24 hours and a cumulative grade point average of 1.800; (b) a student who has been in residence for three regular semesters must have a minimum of 39 hours and a cumulative grade point average of 1.850; (c) a student who has been in residence for four regular semesters must have a minimum of 54 hours and a cumulative grade point average of 1.900; (d) a student who has been in residence for five regular semesters must have a minimum of 69 hours and a cumulative grade point average of 1.950.

Individual schools and/or majors may impose additional restrictions beyond the minimum requirements listed above. Students applying to the Blair School of Music must audition as part of the process. Transfer applicants to the School of Engineering should present at least two semesters of college calculus and two semesters of laboratory- based science as required in the intended major. Advanced Placement or International Baccalaureate credit, if accepted by Vanderbilt, can be used to meet these requirements.

Division of Unclassified Studies

The Division of Unclassified Studies provides an opportunity to take undergraduate courses at Vanderbilt as follows:

a. adults not interested in working toward a degree,
b. visiting students working toward a degree at another institution (students in this category may not remain enrolled in the division for more than two regular semesters and one summer session), and
c. rising junior and senior students in high school who have received special permission to enroll in courses for college credit.

Such students register in the Division of Unclassified Studies. Records are kept of their work, and a transcript may be made available to them as it would be if they were regularly enrolled at Vanderbilt. Work taken in the division may be transferred to a degree-granting unit of the university provided it is work that will count as part of the program of that unit. Work so transferred may not amount to more than one-fourth of the requirements for the Vanderbilt degree. Requests for transfer to a Vanderbilt degree-granting school must be made to the Office of Undergraduate Admissions. Division of Unclassified Studies students are not eligible for intra-university transfer.

Students who want to enroll in the Division of Unclassified Studies must apply and be admitted to the division at least one week before the first day of classes for the term or session they wish to attend. Requests for exceptions to the admission criteria must be addressed in writing to the vice provost for university enrollment affairs and dean of admissions and financial aid, whose decision is final.

All university regulations, including the Honor System, apply to students registered in the Division of Unclassified Studies.

Degree candidates have priority in enrollment at Vanderbilt, and students registering in the Division of Unclassified Studies should be prepared for this contingency. DUS students must meet all course prerequisites. Permission of the Office of the Dean is required for enrollment in some courses. Tuition is charged at the standard rate.

Division of Unclassified Studies students are not charged health insurance fees, and do not have access to student health services.

Summer Session

The ten-week summer session begins in early June and ends early in August. In addition, some units of the university offer an accelerated four-week Maymester. Vanderbilt offers the summer program for regularly enrolled students at the university, for part-time students, and for students enrolled during the regular year in other colleges and universities (visiting students).

Summer courses are normally offered by the College of Arts and Science, Blair School of Music, the School of Engineering, the Graduate School, the School of Nursing, and Peabody College.

Some courses extend over the entire summer session and complete the work of a full semester. Others are offered in modular units of eight, six, five, or four weeks, for full semester credit. Still other summer courses complete a full semester’s work in the first five-week or second five-week half of summer session, with classes meeting twice as many hours per week. In full-year courses offered in summer, the work of the first semester is covered in the first half-session, the work of the second semester in the second half.

Classrooms, residence halls, libraries, and dining halls are air conditioned. The David Williams II Student Recreation and Wellness Center and other athletic facilities are open in the summer. Information about the summer session is available on request from the Division of Unclassified Studies or from each school’s Office of Academic Services. Students may also visit vanderbilt.edu/summer for additional information.

Maymester

In the interval of several weeks between final examinations in the spring semester and the beginning of summer session, Vanderbilt offers educational travel opportunities and a variety of courses that would be difficult to offer during a regular semester.

Students are permitted to take no more than one course during the Maymester. Housing and food services are available during the session. Visiting students are eligible for Maymester courses.

Information about May courses on campus or abroad can be found at vanderbilt.edu/summer.

Financial Information

Financial Information

Estimate of Expenses

Other Academic Fees

Tuition for undergraduates for the 2023/2024 academic year is $61,618 ($30,809 a semester). A fee of $1,100 is charged for students enrolled in the School of Engineering (in addition, freshmen entering the School of Engineering are required to own a laptop computer, with an estimated cost of $1,600). Freshman music majors in the Blair School of Music are charged a one-time technology equipment fee of $564. A full-time undergraduate student takes 12 to 18 hours. Students taking more than 18 hours per semester are charged $2,422 per hour for each extra hour. Students who, for approved reasons, enroll for fewer than 12 hours are charged $2,422 per hour, with a minimum tuition charge of $2,422 per semester. The $400 deposited with the Office of Undergraduate Admissions when the student is accepted is applied to the bill for the first semester.

Undergraduate students are required to purchase Vanderbilt-sponsored health insurance unless the student provides evidence of having comparable coverage that is fully compliant with the Affordable Care Act and all state and federal mandates. For Fall 2023, internationals students studying outside of the United States will able to complete a form to waive this coverage. International students studying in the United States may be eligible for a waiver if studying outside of the state of Tennessee. International students studying within the state of Tennessee must purchase the Vanderbilt-sponsored insurance. For the 2023-2024 year, the cost of the Vanderbilt health insurance plan is $2,397 for domestic students and $3,975 for international students.

Estimate of Expenses

Basic expenses (excluding travel and personal expenses) should be approximately $79,560 a year, itemized as follows:

Tuition (2023/2024)	$61,618
Room and board (1st year estimate)	$21,054
Student service fees (2022/2023)	$1,554
Student health fee (2022/2023)	$774
Books and supplies (estimate)	$1,194
Personal Expenses (estimate)	$3,396

Other Academic Fees

Application fee	$50
First-Year fee	$980
Residential College fee (residential college residents only)	$824
Engineering fee	$1,100
Blair technology equipment fee (one-time fee for freshman music majors)	$598
Late registration fee	$30
Senior-in-absentia minimum semester tuition charge (hourly rate)	$2,567
Credit by departmental examination fee	$50
Transcript fee (one time only)	$100

Students who have not registered by the published dates may be subject to late registration fees.

Registration dates are published in the Academic Calendars.

Payment of Tuition and Fees

E-Billing and Access to a Student's Vanderbilt Account

Refund of Tuition

Payment Options

Late Payment of Fees

Financial Clearance

Student Services Fee and Identification Card

Tuition, fees, and all other university charges incurred prior to or at registration are due and payment must be received by August 31 for the fall semester and December 31 for the spring semester. If courses are added AFTER the initial billing period, it is the student's responsibility to contact the Office of Student Accounts for due dates and amounts related to tuition in order to avoid any holds and/or late payment penalties. All other charges incurred after classes begin are due and payment must be received in full by the last business day of the month in which they are billed to the student. If payment is not made within that time, Commodore Cash may not be available and your classes may be canceled. Visit vanderbilt.edu/stuaccts for payment options.

Students/Guarantors will be responsible for payment of all costs, including reasonable attorney fees and collection agency fees, incurred by the university in collecting monies owed to the university. The university will assess a $25.00 fee for any check or e-payment returned by the bank and reserves the right to invoke the laws of the State of Tennessee governing bad check laws.

E-Billing and Access to a Student's Vanderbilt Account

Vanderbilt exclusively uses convenient and secure electronic billing (e-bills) for student account charges. **Students may need to take action** to enable parents, guardians, and other "invited payers" to receive e-bill notices and access to the e-bill website. Students may access their online invoices from their YES landing page at yes.vanderbilt.edu. Once they have signed in to YES, they may view invoices under the Billing Portal link.

Students are responsible for granting access to parents, guardians, or other payers who should receive email billing notifications. To do this, students log in to YES and click the "billing portal link." On your CashNet Account page, click "My Account" in the side bar, scroll to the section that reads "Payers" and click "Send a payer invitation," input the name of the payer you would like to add and their email address, click "Send Invitation." The logon and temporary password will be sent to your authorized payer in an email.

Any month in which there is activity on the student's account, an e-bill will be generated and an email notification sent to the student's Vanderbilt email address, as well as to the email addresses of others they have invited. The email notification will have the subject line "Your E-Bill Is Now Available for Viewing" and will contain a link to the secure e-bill website.

Payments may be made electronically, or for those wishing to mail a payment, a payment coupon can be printed. When an electronic payment is made, a confirmation email will be sent. **It remains the responsibility of the student to ensure that bills are paid on or before the due date.**

The Office of Student Accounts can be contacted at (615) 322-6693, toll-free at (800) 288-1144, or via email at student.accounts@vanderbilt.edu. For additional information, please visit the Student Accounts website at vanderbilt.edu/stuaccts.

Refund of Tuition

University policy for the refund of tuition and housing charges provides a percentage refund based on the time of withdrawal. Students who withdraw officially or are dismissed from the university for any reason may be entitled to a partial refund. Students who register for more than 18 hours and later reduce their registration to 18 hours or fewer may be entitled to a partial refund of the extra tuition for hours over 18. Fees are nonrefundable. The refund schedules may be viewed at vanderbilt.edu/stuaccts.

Tuition Refund Insurance is offered through the Office of Student Accounts. This elective plan provides coverage for tuition and housing in the event a student withdraws from school due to medical reasons. Go to collegerefund.com

for more information or to apply online.

Payment Options

Direct Payment: Tuition, fees, and all other charges are paid directly to the university. Payment for the fall semester is due by August 31. Payment for the spring semester is due by December 31. Students can pay online after viewing their e-bill at vanderbilt.edu/stuaccts. There is no further action required for this option.

Interest-Free Monthly Payment Plan: Students can spread payment over five monthly installments for each semester (fall and spring), interest free, by enrolling in the VANDYPlan, currently administered by Higher One. The deadline to enroll in the VANDYPlan is August 31 for the fall semester (payments begin May 15) and December 31 for the spring semester (payments begin October 15).

The current estimated charges for the academic year are available at vanderbilt.edu/stuaccts to assist students in determining their annual expenses. For further information, please contact the Office of Student Accounts at (615) 322-6693 or (800) 288-1144, or via email at student.accounts@vanderbilt.edu.

Late Payment of Fees

All charges not paid by the specified due dates will be assessed a late payment fee of $1.50 on each $100 owed (minimum late fee of $5).

Financial Clearance

Transcripts (official or unofficial) will not be released until the account has been paid in full. Diplomas of graduating students will not be released until all indebtedness to the university is cleared.

Student Services Fee and Identification Card

All degree-seeking undergraduate students pay a student services fee that entitles them to admission to certain athletic, social, and cultural events and to subscription to certain campus publications. Specific information on these fees is published annually in the Student Handbook. The undergraduate student's identification card will admit students to university activities and the David Williams II Student Recreation and Wellness Center. It is also used as a library card and to stamp other documents. The card should be carried at all times and be returned to the university if the student withdraws for any reason.

Transcripts

Official academic transcripts are supplied by the Office of the University Registrar on authorization from the student. Transcripts are not released for students with financial or other university holds.

Fraternity and Sorority Membership

There is a financial commitment associated with joining a fraternity or sorority. The costs go toward inter/national fees, chapter operating expenses, and social functions. Financial obligations differ for fraternity and sorority members and among individual chapters. New members can expect to pay higher dues their first semester of membership. Dues for Interfraternity Council (IFC) men and Panhellenic women range from $750 to $1,500 per semester. Initiation fees for National Pan-Hellenic Council (NPHC) and Intercultural Greek Council (IGC) chapters range from $500 to $1,500 and continuing dues range from $100 to $500 each year. Additional costs throughout the semester may be for meal plans, conference attendance, philanthropic contributions, pictures, gifts, parties, T-shirts, etc. Chapter fees are paid directly to the fraternity or sorority. There are payment plans available to students, as well as scholarships within the individual chapters and also may be available at the council-level. Many chapters participate in the Facility Management Program, and non-resident members pay $322 each semester, charged to their student account, for the maintenance and upkeep of the chapter house. In addition, some fraternities pay an additional renewal fee which is deposited into their on-campus account to help pay down loans or create a savings account for future projects on the house.

Need-Based Financial Aid

Vanderbilt is committed to accessibility and affordability for all admitted and enrolled students. Grants, scholarships, and work opportunities are available to eligible students who apply for assistance and have demonstrated financial need. Beginning in the fall of 2009, financial aid packages offered to incoming and current undergraduate students no longer included need-based loans. While continuing to meet the full demonstrated need of all eligible students, this expanded aid initiative, Opportunity Vanderbilt, announced in October 2008 provides increased amounts of need- based grants and/or scholarships (gift assistance) to replace need-based loans that would have otherwise been offered to meet a student's demonstrated financial need.

Demonstrated financial need is the difference between the cost of attending Vanderbilt and the amount that students and their families are expected to contribute toward that cost. The amount of aid to fully meet each student's demonstrated financial need is determined annually on the basis of current financial information required/provided on relevant application forms.

Application Procedure

Prospective students need to complete a Free Application for Federal Student Aid (FAFSA) and a College Scholarship

Service PROFILE. The FAFSA may be completed online at fafsa.ed.gov. Students may complete the CSS PROFILE online at collegeboard.org. The student must submit the FAFSA and PROFILE no later than February 1 of the senior year in high school. Further information regarding the application process is available from the Office of Student Financial Aid and Scholarships at vanderbilt.edu/financialaid.

Students must reapply for financial aid each year by submitting a CSS PROFILE and the FAFSA. Applications are available October 1 of each year. Renewal applicants must be in good standing and making satisfactory academic progress in order to continue receiving federal and institutional student aid funds. Renewal of university need-based assistance requires a minimum cumulative GPA of 2.0 for the sophomore, junior, and senior years. The priority consideration date for filing renewal applications is April 15.

Financial Aid for Early Decision Applicants

Early Decision applicants seeking financial aid must complete the FAFSA and College Scholarship Service PROFILE to be considered for Vanderbilt need-based grant assistance. The FAFSA may be completed online at fafsa.ed.gov. Students may complete the CSS PROFILE online at collegeboard.org. Early Decision I applicants should complete the CSS PROFILE no later than November 7 of the senior year in high school. Early Decision II applicants should complete the CSS PROFILE process no later than January 2 of the senior year in high school. Students will receive an estimate of their eligibility for financial aid with their offer of admission.

Federal Title IV Aid

Financial aid is available from several federal Title IV student financial aid programs. Any citizen or eligible non-citizen of the United States who is accepted for admission and meets Title IV eligibility guidelines is eligible to participate. This aid may be renewed annually by students who continue to qualify if they are in good academic standing and are making satisfactory academic progress in accordance with standards prescribed by the U.S. Department of Education. (See Satisfactory Academic Progress.)

The FAFSA establishes eligibility for participation in federal aid programs. The loan programs also require completion of loan applications, entrance counseling, and/or promissory notes. Applicants should contact their state agencies for information regarding state aid programs and application procedures.

Vanderbilt participates in the following federal student financial aid programs:

Federal Pell Grant Program

Federal Supplemental Educational Opportunity Grant Program (FSEOG) Federal Work-Study Program (FWSP)

Federal Direct Loan Program

Federal Direct Parent Loan for Undergraduate Students (PLUS)

Satisfactory Academic Progress Standards for Undergraduate Students

Academic progress for students receiving Vanderbilt University (institutional) need-based and/or federal Title IV financial assistance will be reviewed at the end of each academic term. Students must be meeting progress standards as defined by the Office of Student Financial Aid and Scholarships. These standards may be stricter than those defined in the academic standards applied by each of the individual undergraduate schools.

Institutional need-based aid assistance, including Vanderbilt need-based grants and scholarships, and federal Title IV financial aid are awarded for the academic year as determined by eligibility criteria for each financial aid program. Renewal and continuation of awards will be contingent upon maintaining satisfactory academic progress (SAP). The undergraduate requirements below are separate from the Academic Eligibility Policy required of all undergraduate

students. Students must obtain a minimum grade point average outlined below. We realistically anticipate that the level of academic performance for each student will be higher than the minimum required cumulative GPA for renewal of Vanderbilt and federal financial aid programs. Students must successfully complete at least 2/3 (67%) of all credit hours attempted (Completed Hours / Attempted Hours = Completion Rate). Students must also complete their degree requirements within 150% of the length of your academic program for Title IV eligibility. For example: Arts and Science degrees require 120 completed credit hours, meaning the maximum timeframe is 180 attempted credit hours.

Satisfactory Academic Progress Standards

Grade Level	Cumulative GPA	Required earned credit hours
Freshman	1.8	0-23
Sophomore	1.8	24
Junior: Peabody and A&S	2.0	54
Junior: Blair and Engineering	2.0	54
Senior: Peabody and A&S	2.0	84
Senior: Blair and Engineering	2.0	86

All recipients who enroll full-time are expected to earn a minimum of 12 credits per semester.

Note: A reported grade of *I* or *M* are calculated as a zero grade point. The student is responsible for notifying the Office of Student Financial Aid if an earned grade is later received. Credit hours for a reported *W* are included in Attempted Hours.

Financial Aid Warning

For students who are making satisfactory progress, the award commitment for the subsequent year will normally be made for the entire academic year. For students who fail to complete the required credit hours within the specified time frame and/or who fail to maintain the minimum GPA, the student will receive a warning and the financial aid commitment will be made for one subsequent semester only. Further review will be undertaken at the end of that semester. If the student fails to complete the required credit hours and/or fails to maintain the minimum GPA within the subsequent semester, institutional and/or federal financial aid will be **suspended**.

Appeal Procedures

Any student whose institutional and/or federal Title IV student aid is **suspended** due to unsatisfactory academic progress may submit an appeal for reinstatement of such assistance to the Office of Student Financial Aid and Scholarships. The appeal for reinstatement should include the following elements:

- An explanation of extenuating circumstances, such as injury, illness, death of a relative, or other special circumstance as to why you failed to meet satisfactory academic progress
- An explanation of what has changed that will now allow you to demonstrate satisfactory academic progress at the end of the next
- Supporting documentation from medical doctors, advisers, psychologists, , to verify the information you are including in your personal statement. Failure to provide information may result in your appeal being denied.

The student will be notified of the appeal approval or denial and if eligibility for institutional and/or federal financial aid funds will be reinstated for one additional semester on a **probationary** basis.

Financial Aid Probation

At the end of a **probationary** semester, students must then meet Satisfactory Academic Progress for continued

eligibility of financial assistance. If a student fails to meet Satisfactory Academic Progress all institutional and/or federal Title IV financial aid will be **suspended**. A student may make a subsequent appeal for continuation of such assistance to the Office of Student Financial Aid and Scholarships. A student's submitted appeal after a Probation status will be reviewed by an Institutional Appeal Committee. If it is determined that the student's failure to meet academic progress was the result of illness, death in the family, or other exceptional or mitigating circumstances, those factors will be considered in determining whether or not eligibility for federal and/or institutional student aid funds can be reinstated for one or more semester(s) while following a prescribed *Academic Plan* as defined by the Institutional Appeal Committee.

Academic Plan

Students must meet the standards set forth in an Academic Plan that has been established to ensure that satisfactory academic progress will be met by a specific point in time in order to continue receiving institutional and/or federal Title IV financial assistance. Students who fail to earn the minimum credit hours and GPA specified in their established *Academic Plan* will have all financial assistance **suspended** until the academic deficiency is corrected.

Reinstatement of Institutional and/or Federal Title IV Assistance

If students fail to progress as outlined above, they will not be eligible to receive further aid and will be notified that they may appeal for reinstatement of institutional and/or federal aid funds in any following/subsequent semester **after** demonstrating progress toward earning their degree by improving the cumulative GPA to a 2.0 and/or credit hour completion rate so that they again meet the minimum requirements. It will be the responsibility of the student to contact the Office of Student Financial Aid and Scholarships to request the reinstatement of his/her institutional and/or federal assistance.

Maximum Aid Eligibility

Vanderbilt University (institutional) need-based assistance: A maximum time frame of four years (eight semesters or its equivalent) of full-time enrollment is established for attainment of a baccalaureate degree when determining eligibility for the receipt of institutional financial aid. Terms enrolled and credits earned at prior colleges/universities and accepted toward the student's undergraduate degree may be counted toward the maximum time frame for Vanderbilt financial assistance.

Federal Title IV assistance: A maximum time frame of 150% of the required credit hours to receive a degree or six years (twelve semesters or its equivalent) of full-time enrollment is established for attainment of the baccalaureate degree when determining eligibility for the receipt of funds through federal Title IV student financial aid programs. Credit hours earned at prior colleges/universities and accepted by Vanderbilt University will be included in the quantitative evaluation and maximum time frame evaluation.

Merit-based Financial Aid

Each year Vanderbilt awards merit-based scholarships to first-year applicants who demonstrate exceptional accomplishment and intellectual promise. These students represent the top 1 percent of all freshman applicants to Vanderbilt, and with the limited number of merit scholarships available, the selection process is very competitive. Additional information regarding the availability of merit-based scholarships and the application process can be found at vanderbilt.edu/scholarships.

Student Employment

A primary source of employment opportunities for students interested in part-time on- or off-campus employment is through access to an online job bank, HireADore. Many university, medical center, and off-campus employers post their open positions on HireADore at appropriate times throughout the year. The Federal Work Study (FWS) Program

is a Federal Title IV program and eligibility for it is determined upon completion of the Free Application for Federal Student Aid (FAFSA) and other required application materials. Vanderbilt has positions available, on a limited basis, for both FWS and non-FWS eligible students. All students hired into on-campus positions will need to complete the federally required I-9 work authorization paperwork/process. More information may be found at vanderbilt.edu/studentemployment or by calling (615) 343-4562.

University General Medals, Prizes, and Awards

Also see the Honors chapters in the College of Arts and Science, Blair School of Music, School of Engineering, and Peabody College sections of this catalog for listings of additional awards and prizes.

THE JESSICA ACESTE AND ELIZABETH BEALE RIPPLE IN THE POND AWARD was established in 2001 by Mr. and Mrs. George G. Strong through the Strong Family Foundation to reward an undergraduate student in any area of the university for random acts of kindness. The award was created to express the extreme gratitude of Mr. and Mrs. Strong in recognition of the assistance and care that their daughter, Meredith, received from her friends and the Vanderbilt community as she was stricken with meningococcal meningitis. Physicians credit the quick action taken by Meredith's classmates and Vanderbilt personnel with saving her life.

THE CHARLES FORREST ALEXANDER PRIZE IN JOURNALISM was endowed in 1982 by friends of Mr. Charles Forrest Alexander, B.A. 1950, who died in 1976. As a student, he was editor of the *Commodore, V Book,* and a staff member of the *Hustler*. The fund provides support for an annual prize to be awarded to a student who has achieved distinction in journalistic projects at Vanderbilt University.

THE GREG A. ANDREWS CIVIL ENGINEERING MEMORIAL AWARD was established in 1969 by James M. Andrews, Sr. to support a senior in civil engineering who has made the greatest progress and who plans to pursue graduate study in environmental and water resources engineering at the School of Engineering. Donor established the fund to honor the memory of his son, Greg, a junior at Vanderbilt who was fatally injured in an auto accident.

THE THOMAS G. ARNOLD FUND was established in 1988 by multiple donors to provide an award for the best research/design project completed by a senior student in the Biomedical Engineering Department at the School of Engineering. The fund was established by family, colleagues, and other friends of Mr. Thomas Arnold Jr., G 1956, in recognition of his long and distinguished service to Vanderbilt from 1952 until his retirement in 1989. Mr. Arnold died in 1989.

THE DAN BARGE JR. AWARD IN CIVIL ENGINEERING was established in 2011 by multiple donors to recognize a junior civil engineering student who exhibits outstanding academic performance and dedication to professional or community service at the School of Engineering. This fund was established to honor the legacy of Daniel B. Barge Jr., B.E. 1943, who was named a Distinguished Alumnus by the School of Engineering in 1981. Dan served his school in numerous capacities, both formal and informal: as an advisor, an employer of graduates, a donor, volunteer solicitor, and most importantly, as a role model for students. For many years, thanks to Dan's efforts, the school has presented an annual American Society of Civil Engineers (ASCE) Award, given in recent years as the ASCE/Dan Barge Award, to honor Dan's professional accomplishments and contributions to ASCE that culminated in his 1987 presidency.

THE MORRIS H. BERNSTEIN JR. PRIZE IN LATIN DECLAMATION was endowed in 1983 by Mr. William H. Bernstein, B.A. 1983, open to any undergraduate student who has completed at least two semesters of Latin at Vanderbilt University. Contestants shall deliver from memory selected Latin prose or poetry passages which reflect the classical ideal. The fund is named for Mr. Bernstein's father, Dr. Morris H. Bernstein, Jr., B.A. 1943, M.D. 1946.

THE BLAIR STUDENT SERVICE AWARD fund established in 2009 by an anonymous donor to provide an annual award for the Blair student who best exemplifies the spirit and tradition of volunteer service through music at the Blair School of Music.

THE GLENN AND ELIZABETH BOGITSH AWARD was established in 1989 by Burton J. Bogitsh, professor of biology, and Mr. and Mrs. James T. Norris, Jr., to provide an annual award to the student at Vanderbilt University who has best demonstrated a strong commitment to campus recreational programs and, by example and leadership, has inspired participation and sportsmanlike conduct in these activities. The award recognizes physical fitness, participation in recreational sports, and sportsmanship and was established to honor the memory of the Donors' son, Glenn, and daughter, Libby, both Vanderbilt graduates who died in a 1988 plane crash. The award recipient will be given a small prize and will have his or her name engraved on a plaque, which describes the award and lists annual winners, to be mounted on a wall of the Student Recreation Center.

THE CASEY CARTER BONAR LEADERSHIP AWARD was established in 2011 by multiple donors to provide awards to undergraduate students in their senior year based on leadership, broad collaboration, enthusiasm, passion for campus involvement, selfless service to Vanderbilt, and dedication to positive change at Vanderbilt University. This fund was established to honor the memory of Casey Carter Bonar, B.A. 1985, a dedicated and selfless leader who inspired excellence and propelled others to join in her commitment to serve. Casey's vitality, warmth, compassion, and boundless enthusiasm served to energize and enhance each of the many campus activities in which she was involved, including student government, student media, Greek life, and Impact. Her passion for facilitating friendship and camaraderie for higher purpose, for promoting service to all and helping expand the horizons of the "underdog," earned her the lifelong gratitude and admiration of her Vanderbilt community. An active member of the Alumni Association Board, she often interviewed prospective students and organized alumni activities. Casey was proud of her Vanderbilt education. She exemplified Cornelius Vanderbilt's vision of strengthening the ties that bind as she consistently reached out to make someone's life better.

THE MARGARET BRANSCOMB PRIZE was established in 1993 to support an undergraduate prize at the Blair School of Music. The wife of Vanderbilt's fourth Chancellor, Harvie Branscomb (1946–1963), Mrs. Branscomb served as president of the Vanderbilt Garden Club from 1952 to 1954. Historically, the prize is given annually to a Blair freshman judged by the faculty to have the musical and personal qualities that best exemplify the spirit and standards of the school.

THE SUE BREWER FUND SCHOLARSHIP was established in 1987 by the Songwriters Guild Foundation to provide support to either composition or guitar majors at the Blair School of Music. To qualify, an entering freshman must be ranked in the upper 25th percentile of his or her class, and an upperclassman must have maintained at least a 3.0 GPA in the performance area, a 2.5 GPA in music, and a 2.0 overall GPA. This fund was established in memory of Sue Brewer, who befriended many of Nashville's struggling songwriters in the late 1960s and early 1970s.

THE FRANKLIN BROOKS MEMORIAL AWARD was established in 1995 by multiple donors to defray travel costs for students studying in France through the Vanderbilt in France program at the College of Arts and Science. This fund was established in memory of H. Franklin Brooks, former associate professor of French and three-time director of the Vanderbilt in France program during his 25-year teaching career at Vanderbilt.

THE LARRY ROSS CATHEY MEMORIAL AWARD was established in 1974 by Arnold M. Heiser to support an award that will recognize the most outstanding student majoring in astronomy in the Astronomy Department at the College of Arts and Science. This award was established in 1974 in memory of Larry Ross Cathey, who graduated in 1966 with honors in physics and astronomy.

THE NORA C. CHAFFIN SCHOLARSHIP was established 1956 by the Women's Council of the Women's Student Government Association to provide scholarship support for deserving undergraduate students at Vanderbilt University. This fund was established in honor of Nora C. Chaffin, former Dean of Women known for her service and loyalty to Vanderbilt University and its women students. The scholarship is awarded to a junior student who has displayed service to the University in the area of student government, religious, literary and scholastic activities, and in the arts.

THE CLASSICS DEPARTMENT STUDENT TRAVEL FUND FOR ROME, ITALY was established in 2006 by Richard H. Davis, B.E. 1969, and Barbara C. Davis, B.S.N. 1969, to support undergraduate student travel expenses in Rome, Italy, through the Classics Department at the College of Arts and Science.

THE PAUL CONKIN FUND was established in 1999 by an anonymous donor to establish a prize for the best undergraduate term paper written on American History in the History Department at the College of Arts and Science. Paul Conkin, Distinguished Professor of History Emeritus at Vanderbilt University, is the author of the history of Vanderbilt University, *Gone with the Ivy,* and the *Peabody College History* which was published in 2002.

THE COOLEY MEDAL was established in 1920 to provide recognition for students who excel in fine arts at the College of Arts and Science. The medal is named after Comrade Theodore Cooley, known as one of the most public-spirited citizens of Nashville. Cooley was a successful Nashville businessman and supporter of the Tennessee Centennial and International Exposition held in Nashville in 1897 at the current location of Centennial Park on West End Avenue.

THE WALTER CRILEY PRIZE PAPER AWARD was established in 1978 by Robert Derrick, B.E. 1954, and the Simons-Eastern Company to be given for the best paper on an advanced senior project in electrical engineering at the School of Engineering at Vanderbilt University. This award was created in honor of Walter Criley, professor emeritus of electrical engineering, who taught from 1947 until his retirement in 1965. Professor Criley helped organize both the student chapter and the Nashville section of the Institute of Electrical Engineers, and also served as southeastern regional vice-president of the National Institute of Electrical Engineers. He passed away in 1977.

THE DONALD DAVIE MEMORIAL POETRY PRIZE was established in 2005 by multiple donors to support an annual prize to be awarded each spring to the best poem submitted by a current graduate student in the Department of English at the College of Arts and Science. This fund was created in memory of poet and Vanderbilt University professor Donald Davie.

THE EDWARD PRENTICE DAVIS MEMORIAL PRIZE was established in 1997 by classmates of Mr. Edward ‘Ward’ Prentice Davis, B.A. 1987, to provide support for an annual prize awarded to a deserving NROTC college program midshipman. Ward was commissioned as a Second Lieutenant in the United States Marine Corps and served honorably for three years as an artillery officer. To his Marine Corps peers, Ward was an inspiration because he pursued his commission as a college program midshipman, without any scholarship. Ward passed away in 1995. This fund was established to honor Ward’s commitment and perseverance.

THE ALLAN P. DELOACH MEMORIAL PRIZE IN PHOTOGRAPHY was established in 1998 by Mr. Rusty Edmister and Mrs. Pat Adams to support a prize in photography in the Fine Arts Department at the College of Arts and Science. This fund was established in memory of Mr. Edmister’s and Mrs. Adam’s former co-worker at IBM and Vanderbilt University alumnus, Allan P. DeLoach, B.A. 1963. The award is open to any student who has taken a studio class of any discipline. Students will submit one to three photographs to be judged by a professional photographer, outside of the Vanderbilt community, who will pick the winner and give a slide lecture to students on his/her work.

THE ROBERT V. DILTS AWARD was established in 1994 by multiple donors to provide an award to a deserving undergraduate chemistry student in the Department of Chemistry at the College of Arts and Science. This award was established to honor Professor Robert V. Dilts, who served on the chemistry faculty from 1960 to 1994.

THE ARTHUR J. DYER JR. MEMORIAL PRIZE was established in 1938 by Arthur J. Dyer, Sr. to award a medal to the Civil Engineering student in his/her senior year who shows the greatest proficiency in the study and/or design in the use of structural steel at the School of Engineering, and who is a student member of the American Society of Civil Engineers. This fund was established in memory of a former Vanderbilt student, Arthur James Dyer, Jr., who was injured while prosecuting engineering duties on a bridge at Panama City, Florida, and died September 2, 1928.

THE DAVID ELIA AWARD was established in 2002 by Mrs. Jean M. Elia to provide a $300 annual award to a varsity women's soccer player in the Department of Athletics. Players will vote on who they consider to be the hardest working player. This fund was established in memory of Mr. David Elia, a parent of a Vanderbilt soccer player.

THE T. ALDRICH FINEGAN AWARD FOR EXCELLENCE IN UNDERGRADUATE ECONOMIC RESEARCH was established in 2005 by T. Aldrich Finegan, Professor Emeritus, to recognize excellence in undergraduate research conducted by a senior graduating from the economics honors program. The award should be given for an outstanding thesis written by a student in the Department of Economics Honors Program at the College of Arts and Science.

THE EDWIN S. GARDNER MEMORIAL PRIZE FOR EXCELLENCE IN FRENCH was established in 1980 by Grace D. Gardner, B.A. 1932, to be used, at the discretion of the Department of French at the College of Arts and Science, in one of two ways: 1) to fund an annual award to a graduating senior excelling in French studies, or 2) to purchase books for the French collection in Jean and Alexander Heard Library. Donor made this gift in honor of her late husband, Edwin S. Gardner, B.A. 1927, who served as treasurer of Vanderbilt from 1953 to 1971.

THE GENERAL MOTORS POLITICAL SCIENCE FUND was established to support undergraduate prizes for political science students at the College of Arts and Science.

THE GEYER AWARD was established in 1979 by Mr. Richard A. Geyer Jr. to support a competitive journalism award designed to give recognition to campus reporters "who consistently write articles resulting from thorough research" and whose articles are, at the same time, "lively, informative, and logical" in any area of Vanderbilt University.

THE GUY GOFFE MEANS AWARD was established in 1975 through the bequest of Marie Hochle Means to provide an award to a student with ability in creative writing in the Department of English at the College of Arts and Science.

THE NORMAN L. AND ROSELEA J. GOLDBERG PRIZE was established in 1988 by Roselea J. Goldberg to support an annual award for the best manuscript submitted each year to Vanderbilt University, preferably in the area of art and medicine. The manuscript will be judged by a committee from Vanderbilt University Press.

THE JOHN P. GREER AWARD was established in 2006 by Professor John and Mrs. Shirley Lachs to provide an award to graduating seniors majoring in philosophy and going to medical school. Donors established this award in honor of Dr. John P. Greer, Professor of Medicine in Vanderbilt's Department of Hematology, to commend his career path and in gratitude of the care given by Dr. Greer to Mrs. Lachs.

THE LARRY C. HALL STUDENT TRAVEL FUND was established in 1995 by multiple donors to support a student traveling to the Pittcon Conference, a chemistry related conference, through the College of Arts and Science. The fund was established in honor of Dr. Larry Hall at the time of his retirement.

THE MARGARET STONEWALL WOOLDRIDGE HAMBLET AWARD was established in 1985 by Clement H. Hamblet and Margaret Hamblet Sarner at the College of Arts and Science. The fellowship was established in memory of Margaret Hamblet's love of art and travels to Europe to study art. Margaret Hamblet was a graduate of Peabody College in the Class of 1926. Clement and Margaret Hamblet met in Paris where Margaret was an art student. The fellowship is awarded to a deserving senior with outstanding merit in art and completion of three or more studio art courses and provides one year of travel and furtherance of creative endeavor following graduation from the College of Arts and Science. The second priority for the fund is to provide a continued small subsidy for a second graduating senior.

THE ANDREW SANG HAN MEMORIAL AWARD was established in 2017 to support an award for a woodwind or brass student at the Blair School of Music who demonstrates remarkable musicianship and leadership in all areas of ensemble playing. The award honors Sang Han, a clarinet performance major at the Blair School of Music from 2012–2015. Sang's dedication to excellence in all areas of performance, as well as the care and consideration he showed his peers, served as an example to his friends and colleagues at Blair.

THE JEAN AND ALEXANDER HEARD AWARD was established in 2013 by the children of Jean and Alexander Heard to provide need-based financial assistance to deserving undergraduate students who have been accepted to one of the summer music festivals through a summer study program at the Blair School of Music. This fund was established in memory of Jean and Alexander Heard. Chancellor Alexander Heard served as Vanderbilt University's fifth Chancellor from 1963 to 1982 and oversaw many changes in the campus. Under his tenure, Peabody College, Blair School of Music, and the Owen Graduate School of Management became part of the University.

THE JEAN KELLER HEARD PRIZE was established in 1985 by the Vanderbilt Woman's Club to provide an award for excellence in music performance to a string student seeking a Bachelor of Music degree at the Blair School of Music. This fund was established to honor violinist Jean Keller Heard, the wife of Vanderbilt's former Chancellor Alexander Heard. Mrs. Heard passed away in 2011.

THE FRANK HOUSTON AWARD FOR ORATORY was established in 1974 by Mr. Frank K. Houston, B.A. 1904, and former member of the Vanderbilt Board of Trust, to support an annual prize given to a student who excels in a presentation in public speaking in any department at Vanderbilt University. Mr. Houston grew up in Murfreesboro, Tennessee, and took public speaking while he was a student at Vanderbilt. He established this competition to encourage competent public speaking, as he believed that his experience at Vanderbilt had made a very real difference in his own life.

THE MELVIN D. JOESTEN SCIENCE VOLUNTEER AWARD FUND was established in 1998 by multiple donors to provide an award for outstanding science student volunteers in the Chemistry Department at the College of Arts and Science. This endowed fund was established in the name of Melvin "Mel" D. Joesten in recognition of his many years of service to the department and to Vanderbilt University.

THE MARK M. JONES UNDERGRADUATE AWARD IN INORGANIC CHEMISTRY was established in 1998 by colleagues and other friends of Professor Jones to recognize undergraduates who have excelled in inorganic chemistry at the College of Arts and Science. Preference will be given to students showing excellence in undergraduate research. Dr. Jones taught chemistry from 1957 until his retirement in 1998 and chaired the chemistry department from 1970 until 1976.

THE MICHAEL B. KEEGAN TRAVELING FELLOWSHIP was established in 2004 by Michael B. Keegan and others to provide one or more graduating undergraduate student(s) with an opportunity to study and travel abroad in pursuit of an issue or topic of personal and intellectual passion. The Fellowship will provide a minimum of one annual award, each in the amount of not less than $10,000 to help pay for travel expenses for the recipient(s), allowing the recipient(s) to study and possibly work outside the United States of America for approximately one year. The fund was established as an international fellowship to foster in the student(s) a sense of his/her potential as a citizen of the world, and as a traveling fellowship to create a deep cross-cultural experience.

THE W. G. KIRKPATRICK ENGINEERING PRIZE was established in 1926 through a bequest from Walter Gill Kirkpatrick, B.E. 1887, B.S. and

M.S. 1889, to provide support for an annual prize for the most deserving third-year student in the Department of Civil Engineering at the School of Engineering.

THE MAGDA LACHS AWARD was established in 2008 by Brenda Higgins, a former employee in Development and

Alumni Relations for the Blair School of Music, to support a voice or orchestra student at Blair who participates in the opera presentation in the school year in which it was given. The fund was established in honor of Magda Lachs' 100th birthday.

THE C. MAXWELL LANCASTER AWARD FOR EXCELLENCE IN ITALIAN was established in 1990 by Professor Luigi Monga to honor the memory of C. Maxwell Lancaster, professor of French and Italian at Vanderbilt University from 1939 until his retirement in 1976, and to promote the study of the Italian language and literature at Vanderbilt University. The annual prize will consist of a medal which will be awarded to a fourth- semester student for excellence in Italian, at the recommendation of the faculty of the Department of French and Italian.

THE R. J. LARSEN PRIZE FOR EXCELLENCE IN MATHEMATICS was established in 2005 by multiple donors to provide an award to a graduating senior for excellence in mathematics at the College of Arts and Science. This fund was established in honor of Professor Richard Larsen to celebrate his retirement. Professor Larsen worked in the Department of Mathematics at the College of Arts and Science for over thirty years.

THE JOEL CARL LICHTER MEMORIAL AWARD was established in 1996 by Professor and Mrs. Barry D. Lichter to provide an award that will be presented each year at the Magnolia Awards ceremony to a graduating senior who contributes by example to the promotion of outdoor education, combining academic excellence and expertise in wilderness skills along with friendship and service to others in any area of Vanderbilt University. Professor and Mrs. Lichter established the award to honor the life of their son Joel Lichter, an avid outdoorsman who graduated from Vanderbilt University magna cum laude in 1981 with honors in chemical engineering. Joel Lichter died in a 1992 accident in Alaska while commercial fishing.

THE LEE J. LOVENTHAL PRIZE was established in 1937 by Mr. Lee Jefferson Loventhal, class of 1896 and member of the Vanderbilt University Board of Trust from 1919 to 1940, to establish a prize in the Department of Communication Studies.

THE S. S. AND I. M. F. MARSDEN AWARD IN MUSICAL SCHOLARSHIP was established in 1998 by Dr. Sullivan F. Marsden for a written paper on a topic that might lie outside the normal core of scholarship at the Blair School of Music. The award will be an annual $1,000 prize to encourage and recognize excellence in scholarship.

THE THOMAS W. MARTIN MEMORIAL AWARD was established in 1992 by multiple donors to support an award recognizing an outstanding undergraduate physical chemistry student at the College of Arts and Science. This fund was established in memory of Thomas W. Martin Jr., chair of the Department of Chemistry from 1967 to 1970.

THE CARL MASON AWARD was established in 1986 to provide assistance to incoming graduate students in the area of environmental engineering in the School of Engineering.

THE DELENE LAUBENHEIM MCCLURE MEMORIAL PRIZE IN OPERA was established in 1997 by multiple donors to provide support for voice majors who exhibit excellence in opera at the Blair School of Music. This scholarship was established to honor the memory of Delene Laubenheim McClure, BMUS, 1991. While at Vanderbilt, Mrs. McClure was a member of the Blair Opera Workshop. She debuted at the Kennedy Center in Washington, D.C., in 1994 as a finalist in the National Symphony Orchestra's Young Soloists competition and won the competition in 1995. Mrs. McClure passed away in 1997.

THE JOHN T. AND LIZZE ALLEN MCGILL AWARD was established in 1960 by Lizzie Allen McGill to provide an award to one or more residents of McGill Hall who have the best developed qualities of leadership and scholarship. This fund was established in memory of Mrs. McGill’s husband who passed away in 1946, and who spent his life in service to Vanderbilt as a student in the class of 1879, professor emeritus of chemistry, Dean of the School of Pharmacy, and

historian of the university. Preference in awarding is for a freshman with financial need.

THE SAMUEL T. MCSEVENEY AWARD was established in 2001 by Professor Samuel T. McSeveney to recognize an undergraduate student with the best paper written in a freshman seminar in the Department of History.

THE MERRILL MOORE AWARD was established in 1961 by Mrs. Merrill Moore, Vanderbilt alumna and widow of the late Merrill Moore, M.D. 1928, to provide a cash award to a student graduating from Vanderbilt University or a junior or senior student on the basis of the student's literary promise and the psychological or practical usefulness of award to him/her at the College of Arts and Science. Dr. Moore was an internationally known Boston psychiatrist and a poet.

THE HENRIETTA HICKMAN MORGAN PRIZE was established in 1946 by William B. Morgan II to provide awards to freshmen students with the best pieces of original writing at the College of Arts and Science. This fund was established in memory of the donor's wife, Henrietta Hickman Morgan. Mrs. Morgan received her B.A. in 1938 from Vanderbilt University and was a member of the Kappa Alpha Theta sorority, and Phi Beta Kappa Phi Sigma Iota, an honorary romance language group. She served as flag secretary and aide to Rear Admiral Martin K. Metcalf for more than two years before falling ill in 1945.

THE NED PARKER NABERS AWARD was established in 1984 by multiple donors to provide an annual prize for the best essay or research paper by an undergraduate student in the fields of classical archaeology or ancient art or architecture. The fund was established in memory of Ned Parker Nabers who served on faculty from 1966 until his death in 1984.

THE DANA W. NANCE PRIZE was established in 1985 by Professor Francis C. Nance, B.A. 1953, and family to provide an annual award to a student at the College of Arts and Science. The award will recognize an outstanding student from the pre-medical curriculum who has demonstrated perseverance in overcoming academic, financial, or social obstacles to succeed, who is well-trained in the technical skills acquired through the undergraduate pre-medical curriculum, and who possesses an abiding sense of ethical and moral concern for the patient. The fund was established to honor Dana W. Nance, B.A. 1925, M.D. 1929, who served for many years as the area chairman of the Vanderbilt Alumni Fund.

THE ELLIOTT AND AILSA NEWMAN CLARINET AWARD was established in 1999 through the bequest of Ailsa MacKay Newman along with additional memorial gifts to provide an award to a deserving clarinet student at the Blair School of Music. Preference when awarding is given to a clarinet major who shows strong musical promise. If a clarinet major is not available, the award should be given to a woodwind student. This fund is named for Mrs. Newman and her husband, who predeceased her.

THE L. HOWARD NICAR MEMORIAL FUND was established in 1997 by multiple donors to award a prize or scholarship to a collegiate student at the Blair School of Music. This fund was established in memory of L. Howard Nicar, former Assistant Dean of Admissions at the Blair School of Music.

THE DONALD E. PEARSON AWARD was established in 1980 by the Chemistry Department and endowed in 2008 by Dr. and Mrs. Frank Pinkerton to provide support for an annual award to an outstanding chemistry major who has done undergraduate research in chemistry. Professor Donald E. Pearson served as faculty in the Department of Chemistry at the College of Arts and Science until his retirement in 1986.

THE PHI BETA KAPPA CENTENNIAL AWARD was established in 1998 by the Phi Beta Kappa Council to provide support for an annual award at the College of Arts and Science. This fund, established in celebration of the Alpha of Tennessee chapter's centennial in 2001, will be presented to a Vanderbilt senior who has been elected to Phi Beta

Kappa in their junior year and who has demonstrated excellence in several different fields of academic endeavor, and has applied his or her intellectual talents in extracurricular activities within the university or community that exemplify a dedication to improve the human condition.

THE EMILY ANN BENNETT PLANT AWARD IN ANTHROPOLOGY was established in 1995 by Emily Ann Bennett Plant, B.A. 1994, to provide financial support based on merit and need to recognize excellence in the study of anthropology at the College of Arts and Science. The award may be applied to the cost of tuition and living expenses or to fund supplemental educational activities that will enrich the study of anthropology, such as summer research or participation in a field school.

THE ROBERT PETER PRATT MEMORIAL AWARD was established in 1991 by multiple donors to honor Robert Peter Pratt (1954–1991), former associate director of Undergraduate Admissions and longtime leader in promoting diversity within the student population. The award is presented annually to the Chancellor's Scholar whose accomplishments best exemplify Peter Pratt's commitment to diversity and unity, leadership and cooperation, warmth and openness, and unselfish service to others. The award recognizes a Chancellor's Scholar of junior or senior standing whose campus leadership and service promote diversity and enhance understanding among the various groups that comprise the university community. Academic performance is also considered in selecting the award recipient.

THE DAVID RABIN PRIZE was established in 1985 by multiple donors to provide an annual prize to a student chosen on the basis of music ability and talent at the Blair School of Music. This prize was established in memory of Dr. David Rabin, former professor of medicine in obstetrics and gynecology at the School of Medicine. Dr. Rabin passed away in 1984.

THE JERRY REVES STUDENT ATHLETE GPA AWARD was established through funds from the terminated trust of Dr. Joseph Gerald Reves, Jr., B.A. 1965, to annually fund a plaque for the student-athlete with the highest GPA.

THE JIM ROBINS AWARD was established in 1969 by Michael G. Wagner, B.A. 1957, to honor the memory of James A. Robins, class of 1892, whose life and teaching exemplified selfless devotion to learning, to honor, to participation in sports and to service to youth and Vanderbilt. The prize is awarded to a member of the football team voted as the most outstanding representative of the group.

THE JOE L. ROBY NROTC ESPRIT DE CORPS AWARD was established in 2006 by Mr. Duff Anderson and Mr. W. Patrick McMullan III, B.A. 1974, to recognize and reward Vanderbilt NROTC Midshipmen who display outstanding enthusiasm and esprit de corp as members of the battalion through involvement in NROTC and university activities and provide inspiration to fellow midshipmen and students at Vanderbilt University. The award was created in honor of Joe L. Roby, B.A. 1961, Vanderbilt trustee emeritus, and a former Battalion Commanding Officer of the Vanderbilt NROTC Midshipmen Battalion in recognition of his inspiring leadership at Vanderbilt University and with the Vanderbilt Naval ROTC program and his subsequent service in the United States Navy.

THE KATHRYN SEDBERRY POETRY PRIZE was established in 2003 through the estate of Kathryn Sedberry, M.A. 1963, to provide support for an annual poetry prize in the Department of English at the College of Arts and Science.

THE JAMES G. STAHLMAN NROTC AWARD was established in 1972 by former Vanderbilt Trustee, James Geddes Stahlman, B.A. 1919, to provide an award to the top Navy ROTC member and the top Marine ROTC member from the senior class who have proven themselves to be the most outstanding in citizenship, scholarship, and leadership in the Naval ROTC unit. The award recipients will be chosen by their Commanding Officer.

THE DAVID STEINE ECONOMICS AND BUSINESS AWARD was established in 2006 by James B. Johnson Jr., B.A. 1954,

to recognize undergraduates in the Undergraduate Business Minor Program who show exceptional promise for a career in business. The fund may be awarded to any graduating student from any of Vanderbilt's four undergraduate schools who will graduate with a business minor. The award was established to honor the memory and distinguished career of David Steine, a professor held in the highest esteem by the donor.

THE STEIN STONE MEMORIAL AWARD was established in 1948 by Mrs. James N. Stone to provide an award to students in the School of Engineering. This fund is to be awarded to a graduating senior who has lettered in a sport, preferably football, and who is judged to have made the most satisfactory scholastic and extramural progress as an undergraduate. This fund was established in memory of Mrs. Stone's late husband, James "Stein" Stone, student at the School of Engineering in 1908 and an "All Southern" center on the Vanderbilt University football team from 1904 to 1907.

THE HENRY LEE SWINT AWARD was established in 1976 by Frank A. Woods, B.A. 1963, LL.B. 1966, for an undergraduate history major with the best history essay or research paper in the Department of History at the College of Arts and Science. The fund was established in honor of Henry Lee Swint, a former Holland N. McTyeire Professor of History who served on the faculty from 1939 until his retirement in 1977.

THE ROBERT D. TANNER UNDERGRADUATE RESEARCH AWARD was established in 2005 by multiple donors to provide an award to an undergraduate student conducting research in the Department of Chemical Engineering at the School of Engineering. This award was established in honor of Dr. Robert D. Tanner, emeritus faculty, at the time of his retirement. Dr. Tanner was a professor of chemical engineering at Vanderbilt University.

THE JOEL TELLINGHUISEN PHI BETA KAPPA AWARD was established in 2006 by James B. Johnson, Jr., B.A. 1954, to recognize undergraduate students who have been initiated into Phi Beta Kappa and have shown exceptional ability at the College of Arts and Science. The award honors Joel Tellinghuisen, professor of chemistry, for his positive impact and influence in educating undergraduate students at Vanderbilt, including Mr. Johnson's daughter, Katherine Johnson, B.S. 1994, M.Ed. 1995. The annual awards will be made to graduating seniors who are members of Phi Beta Kappa, in recognition of outstanding performance in research as an undergraduate at Vanderbilt.

THE UNDERWOOD MEMORIAL AWARD was established in 1961 by Newton Underwood to support a senior in the Department of Physics or Department of Biology selected alternately by the head of the physics department and the head of the biology department to be awarded each year at commencement. The award honors his father, Judge Emory Marvin Underwood, B.A. 1900, LL.B. 1902, and a member of the Vanderbilt Board of Trust from 1922 until his death in 1960, who devoted his life to justice and to bringing out the best in people.

THE JACQUELINE AND MORRIS WACHS ESSAY PRIZE was established in 1999 by multiple donors to support a prize in the Department of French and Italian at the College of Arts and Science. This fund was established in memory of Jacqueline Wachs, former French professor from 1966 until her retirement in 1994, and Morris Wachs, emeritus professor of French at Vanderbilt. Mrs. Wachs died in 1999 and Mr. Wachs died in 2001.

THE WALTHER AWARD FOR VUCEPT EXCELLENCE (WAVE) was established in 2005 by Beverly R. Walther, B.S. 1990, MBA 1990, and Michael C. Walther II, B.S. 1989, MBA 1990, to reward undergraduate students serving as mentors in the VUcept orientation program at the discretion of the Provost and Vice Chancellor for Academic Affairs, or designee.

THE THOMAS M. WESER AWARD was established in 1989 by multiple donors to provide support for an annual award honoring an international student who has demonstrated an exceptional commitment to intellectual life, cross-cultural appreciation, and personal integrity at Vanderbilt University. Weser Award recipients are typically active in student organizations and community service projects outside of the classroom and maintain a solid record of academic performance at the undergraduate or graduate level. This fund was established in memory of Thomas M. Weser, an exchange student from Germany who was killed while attending Vanderbilt University in 1988.

THE MARTIN WILLIAMS AWARD was established in 1992 by multiple donors to provide an award to a music major writing the most outstanding paper for a music theory or literature/history course at the Blair School of Music. This fund was established in memory of Martin Williams, director of the Smithsonian Institution's jazz program and adjunct professor of jazz history at the Blair School of Music.

THE FRANK A. WOODS AWARD IN HISTORY was established in 2008 by Mr. James Lachs, B.S. 1993, to provide an award for a graduating senior majoring in history with the most distinguished academic record at the College of Arts and Science. The fund was created in honor of Mr. Frank A. Woods, B.A. 1963, LL.B. 1966.

THE KATHERINE B. WOODWARD PRIZE IN SPANISH was established in 1943 by Katherine B. Woodward, B.A. 1919, to provide an award to the student with the highest average majoring in Spanish at the College of Arts and Science. Preference in awarding will be given to senior year students. Miss Woodward served as a teacher then head of the Spanish Department at the Woodrow Wilson High School in Portsmouth, Virginia, from 1919 until her retirement in 1956. She had a deep love for Vanderbilt and an intense interest in promoting the teaching of Spanish.

Communicating with Vanderbilt

Communicating with Vanderbilt

Admissions

Financial Aid and Scholarships

Teacher Licensure

Housing

Academic and Faculty Matters

Army ROTC

Naval ROTC

Admissions

First-year and transfer

Dean Douglas Christiansen

Office of Undergraduate Admissions

2305 West End Avenue

Nashville, Tennessee 37203

(615) 322-2561, (800) 288-0432

Division of Unclassified Studies

Division of Unclassified Studies

Office of the University Registrar

110 21st Avenue South, Suite 110

Nashville, TN 37203

(615) 343-4306

Financial aid and scholarships

Brent Tener, Director

Office of Student Financial Aid and Scholarships

2309 West End Avenue

Nashville, Tennessee 37203

(615) 322-3591, (800) 288-0204

Teacher licensure

Amanda K. Van Doorn, Director of Teacher Licensure

213 Peabody Administration Building

1212 21st Avenue South

Nashville, Tennessee 37203

(615) 322-8270

Housing

Office of Housing and Residential Education

4100 Branscomb Quad

Vanderbilt Place at 24th Avenue South

Nashville, Tennessee 37212

(615) 322-2591

Academic and faculty matters

College of Arts and Science

John G. Geer, Dean

404 Buttrick Hall

390 24th Avenue South Nashville, Tennessee 37240

(615) 322-2851

Blair School of Music
Lorenzo F. Candelaria, Dean

2400 Blakemore Avenue

Nashville, Tennessee 37212

(615) 322-7651

School of Engineering

Philippe M. Fauchet, Dean

5332 Stevenson Center

Nashville, Tennessee 37235

(615) 322-0720

Peabody College

Camilla Persson Benbow, Dean

202 Peabody Administration Building

1212 21st Avenue South

Nashville, Tennessee 37212

(615) 322-8407

Army ROTC

Army Officer Education Program

1114 19th Avenue South

Nashville, Tennessee 37212

(615) 322-8550, (800) 288-7682

Naval ROTC

Naval Officer Education Program

1114 19th Avenue South

Nashville, Tennessee 37212

(615) 322-2671, (800) 288-0118

College of Arts and Science

College of Arts and Science Administration and Faculty

JOHN G. GEER, Ph.D., Dean

BONNIE J. DOW, Ph.D., Dean of Academic Initiatives

KAMAL SAGGI, Ph.D., Dean of Faculty

DAVID W. WRIGHT, Ph.D., Dean of Graduate Education and Research

ROGER E. MOORE, Ph.D., Senior Associate Dean and Interim Director of Undergraduate Education

DANIEL MORGAN, Ph.D., Associate Dean of Undergraduate Education

JONATHAN PETTY, B.A., Associate Dean of Development and Alumni Relations

ANDREA HEARN, Ph.D., Assistant Dean of Undergraduate Education

CARRIE RUSSELL, J.D., Ph.D., Assistant Dean of Undergraduate Education; Director of MLAS and Pre-Law Advising

PATRICK J. RETTON II, B.S., Chief Business Officer

HOLLIS CALHOUN, M.P.A., Executive Director of Strategic Affairs and Communications

MELISSA WOCHER, B.A., Administrative Director

Named and Distinguished Chairs

CELIA STEWART APPLEGATE, William R. Kenan, Jr., Chair in History

BRIAN BACHMANN, Stevenson Chair in Chemistry

HOUSTON A. BAKER, JR., University Distinguished Professor in English

LARRY M. BARTELS, May Werthan Shayne Chair in Public Policy and Social Science

MICHAEL D. BESS, Chancellor’s Chair in History

DAVID BLACKBOURN, Cornelius Vanderbilt Distinguished Chair in History

RANDOLPH BLAKE, Centennial Professor in Psychology

ERIC W. BOND, Joe L. Roby Chair in Economics

KENDAL SCOT BROADIE, Stevenson Chair in Neurobiology

WILLAM CAFERRO, Gertrude Conaway Vanderbilt Chair in History

MARIA CAMPOS-PONS, Cornelius Vanderbilt Chair in Art

CHRISTOPHER CARPENTER, E. Bronson Ingram Chair in Economics

KENNETH C. CATANIA, Stevenson Chair in Biological Sciences

JAY CLAYTON, William R. Kenan, Jr., Chair in English

DAVID CLIFFEL, Cornelius Vanderbilt Chair

JOSHUA D. CLINTON, Abby and Jon Winkelried Chair in Political Science

WILLIAM COLLINS, Terence E. Adderley, Jr., Chair in Economics

JEFFERSON R. COWIE, James G. Stahlman Chair in American History

KATHERINE CRAWFORD, Cornelius Vanderbilt Chair in Gender and Sexuality Studies and History

KATE DANIELS, Edwin Mims Chair in English

COLIN DAYAN, Robert Penn Warren Chair in the Humanities

ARTHUR A. DEMAREST, Ingram Chair in Anthropology

DENNIS C. DICKERSON, Reverend James M. Lawson, Jr., Chair in History

MICHAEL ERIC DYSON, University Distinguished Chair and Centennial Chair in African American and Diaspora Studies

MARSHALL C. EAKIN, Distinguished Professor of History

TONY LEE EARLEY, Samuel Milton Fleming Chair in English

BRANDT F. EICHMAN, William R. Kenan, Jr., Chair

LYNN E. ENTERLINE, Nancy Perot Mulford Chair in English

EDWARD FISCHER, Cornelius Vanderbilt Chair in Anthropology

LEONARD FOLGARAIT, Distinguished Professor in History of Art and Architecture

ISABEL GAUTHIER, David K. Wilson Chair in Psychology

JOHN G. GEER, Ginny and Conner Searcy Dean of Arts & Science

LENN E. GOODMAN, Andrew W. Mellon Chair in the Humanities

JOHN C. GORE, Hertha Ramsey Cress University Chair in Radiology and Radiological Sciences and Biomedical Engineering and Physics

TODD R. GRAHAM, Stevenson Chair in Biological Sciences

SENTA VICTORIA GREENE, Stevenson Chair in Physics

RICHARD F. HAGLUND, JR., Stevenson Chair in Physics

JOSEPH H. HAMILTON, Landon C. Garland Distinguished Chair in Physics

JOEL HARRINGTON, Centennial Professor in History

DAVID J. HESS, James Thornton Fant Chair in Sustainability Studies

RUTH HILL, Andrew W. Mellon Chair in the Humanities

J. KELLY HOLLEY-BOCKELMANN, Stevenson Chair in Physics and Astronomy

STEVEN D. HOLLON, Gertrude Conaway Vanderbilt Chair in Psychology

SARAH E. IGO, Andrew Jackson Chair in American History

ATSUSHI INOUE, Cornelius Vanderbilt Chair in Economics

LARRY W. ISAAC, Gertrude Conaway Vanderbilt Chair in Sociology

MAJOR JACKSON, Gertrude Conaway Vanderbilt Chair in the Humanities

CHRISTOPHER M. S. JOHNS, Norman L. and Roselea J. Goldberg Chair in Art History

CARL H. JOHNSON, Cornelius Vanderbilt Chair in Biological Sciences

JEFFREY N. JOHNSTON, Stevenson Chair in Chemistry

JON H. KAAS, Gertrude Conaway Vanderbilt Distinguished Chair in Psychology

CINDY D. KAM, William R. Kenan, Jr., Chair in Political Science

LUTZ KOEPNICK, Gertrude Conaway Vanderbilt Chair in German

VERA M. KUTZINSKI, Martha Rivers Ingram Chair in English

PETER LAKE, Martha Rivers Ingram University Distinguished Chair in History

JANE G. LANDERS, Gertrude Conaway Vanderbilt Chair in History

DAVID E. LEWIS, Rebecca Webb Wilson University Chair

TONG LI, Gertrude Conaway Vanderbilt Chair in Economics

CRAIG W. LINDSLEY, University Professor in Chemistry

WILLIAM LUIS, Gertrude Conaway Vanderbilt Chair in Spanish

LAWRENCE J. MARNETT, University Professor of Biochemistry, Chemistry, and Pharmacology; Mary Geddes Stahlman Chair

RENÉ MAROIS, Winkelreid Family Chair

HOLLY McCAMMON, Cornelius Vanderbilt Chair in Sociology

RALPH MCKENZIE, Distinguished Professor in Mathematics

JOHN MCLEAN, Stevenson Chair in Chemistry

DOUGLAS G. MCMAHON, Stevenson Chair in Biological Sciences

JON MEACHAM, Carolyn T. and Robert M. Rogers Chair

JONATHAN METZL, Frederick B. Rentschler II Chair in Sociology and Medicine, Health, and Society

LORRIE MOORE, Gertrude Conaway Vanderbilt Chair in English

KEVIN D. MURPHY, Andrew W. Mellon Chair in the Humanities

DANA NELSON, Gertrude Conaway Vanderbilt Chair in English

MOSES OCHONU, Cornelius Vanderbilt Chair in History

KELLY OLIVER, W. Alton Jones Chair in Philosophy

ALEXANDER OL'SHANSKIY, Centennial Professor in Mathematics

BUNMI OLATUNJI, Gertrude Conaway Vanderbilt Chair in the Social and Natural Sciences

LUCIUS OUTLAW, W. Alton Jones Chair

THOMAS J. PALMERI, Distinguished Professor of Psychology

SOKRATES T. PANTELIDES, University Distinguished Professor of Physics and Engineering; William A. and Nancy F. McMinn Chair in Physics

SOHEE PARK, Gertrude Conaway Vanderbilt Chair in Psychology

JAMES G. PATTON, Stevenson Chair in Biological Sciences

MATTIAS K. POLBORN, E. Bronson Ingram Chair in Economics

ANTONIS ROKAS, Cornelius Vanderbilt Chair in Biological Sciences

SANDRA J. ROSENTHAL, Jack and Pamela Egan Chair in Chemistry

PETER L. ROUSSEAU, Gertrude Conaway Vanderbilt Chair in Economics

EDWARD L. RUBIN, University Professor of Law and Political Science

KAMAL SAGGI, Frances and John Downing Family Chair

MARK SAPIR, Centennial Professor in Mathematics

LARRY L. SCHUMAKER, Stevenson Chair in Mathematics

THOMAS A. SCHWARTZ, Distinguished Professor of History

TRACY D. SHARPLEY-WHITING, Gertrude Conaway Vanderbilt Chair in African American and Diaspora Studies and French

JOHN M. SIDES, William R. Kenan, Jr. Chair

HELMUT W. SMITH, Martha Rivers Ingram Chair in History

KEIVAN G. STASSUN, Stevenson Chair in Physics

GARY ALLEN SULIKOWSKI, Stevenson Chair in Chemistry

ROBERT B. TALISSE, W. Alton Jones Chair in Philosophy

PAUL C. TAYLOR, W. Alton Jones Chair

FRANK TONG, Centennial Chair in Psychology

BENIGNO TRIGO, Gertrude Conaway Vanderbilt Chair in the Humanities

HOLLY A. TUCKER, Mellon Foundation Chair

DANIEL H. USNER, JR., Holland M. McTyeire Chair in History

JULIA VELKOVSKA, Cornelius Vanderbilt Chair

W. KIP VISCUSI, University Distinguished Professor of Law, Economics, and Management

DAVID J. WASSERSTEIN, Eugene Greener, Jr., Chair in Jewish Studies

JOHN A. WEYMARK, Gertrude Conaway Vanderbilt Chair in Economics

JOHN P. WIKSWO, JR., Gordon A. Cain University Chair in Physics; A. B. Learned Chair in Living State Physics

RHONDA WILLIAMS, John L. Seigenthaler Jr. Chair in American History

ALAN WISEMAN, Cornelius Vanderbilt Chair in Political Science

DAVID W. WRIGHT, Stevenson Chair in Chemistry

EDWARD WRIGHT-RIOS, Mellon Foundation Chair in the Humanities

ELIZABETH ZECHMEISTER, Cornelius Vanderbilt Chair in Political Science

MEL ZIEGLER, Paul E. Shwab Chair in Fine Arts

LAURENCE J. ZWIEBEL, Cornelius Vanderbilt Chair in Biological Sciences

Faculty Council

, Chair. , Secretary. *Ex officio:* Dean of the College.

DIVISIONAL MEMBERS.

Terms expiring May 2021:

Terms expiring May 2022:

AT-LARGE MEMBERS.

Terms expiring May 2021:

Terms expiring May 2022:

Rosters for the following Arts and Science committees are available at as.vanderbilt.edu/faculty/committees.php.

ADMINISTRATIVE COMMITTEE ADMISSIONS COMMITTEE

AXLE IMPLEMENTATION COMMITTEE

COMMITTEE ON ACADEMIC STANDARDS AND PROCEDURES

COMMITTEE ON EDUCATIONAL PROGRAMS

COMMITTEE ON GRADUATE EDUCATION

COMMITTEE ON HEALTH RELATED PROFESSIONS

COMMITTEE ON INDIVIDUAL PROGRAMS

COMMITTEE ON UNDERGRADUATE INTERDISCIPLINARY STUDIES

CURRICULUM COMMITTEE

SECOND LANGUAGE STUDY COMMITTEE

STUDENT-FACULTY RELATIONS COMMITTEE

STUDY ABROAD COMMITTEE

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

A Community for Liberal Learning

Faculty and Students

The Writing Studio/Tutoring Services

Computers

The Advising System

Public Lectures

"The work of the College of Arts and Science is fundamental. It is the basis of all professional study. No professional school can be self-sufficient. The College in its undergraduate and graduate work must remain the heart of the whole situation, and send its quickening life blood into every fiber and tissue."

—Chancellor James H. Kirkland at the semicentennial celebration of the university October 1925

Chancellor Kirkland's words were prophetic of our times as well as true of his own. Since its founding Vanderbilt has pursued its mission of excellence in the liberal arts with a commitment to liberal learning that is the special concern of the College of Arts and Science. Liberal learning endures because it brings men and women to subjects, concepts, and modes of thought that enable them to think critically about where humanity has been and where it ought to be going. The liberal arts spark curiosity and broaden vision, help to instill understanding of matters otherwise unknown, and encourage individuals to live their lives with a sense of purpose, context, and relatedness. A liberal education has perennial relevance and usefulness: it should prepare its recipients to think precisely, to reason clearly, and to judge wisely—all practical considerations in the pursuit of constructive and satisfying lives and in the practice of today's professions and vocations.

Today the College of Arts and Science maintains its historic position as the heart of the university. Excellence in undergraduate and graduate education is its unwavering aim.

The College of Arts and Science provides intellectual stimulation, training, and incentive designed to foster the lifelong liberal learning of its graduates. It offers challenging, forward-looking programs of study in the humanities, natural sciences, and social sciences resourcefully taught by distinguished faculty recognized for excellence in

research, scholarship, and creative expression. It promotes self-realization and expression in the context of social responsibility.

Faculty and Students

The College of Arts and Science derives its strength from the range of its academic offerings, from the quality of the faculty who teach, and from the quality of the students who come to learn. Traditionally fortunate in its ability to attract and retain a superior faculty, the College of Arts and Science has more than 500 full-time professors who supplement their achievements in the classroom with significant research, creativity, and writing. Many faculty members hold awards for distinguished scholarship and have been elected to high offices in their professional associations, including the Classical Association of the Middle West and South, the American Economics Association, the American Political Science Association, the American Philosophical Association, the American Physical Society, the American Historical Association, and the Biophysical Society.

The quality of the College's faculty is matched by that of its diverse student body. Undergraduates come from the fifty states and fifteen to twenty foreign countries and are almost evenly divided between men and women.

Academic Support

The Writing Studio / Tutoring Services

The Writing Studio provides undergraduate students the opportunity to meet with trained writing consultants to discuss individual writing concerns, from invention to drafting to revision. The Writing Studio provides a space for students to discuss work-in-progress with expert writers, to create their own writing, and to utilize available resources for improving both writing and critical thinking skills.

The mission of the Vanderbilt Writing Studio is to enhance student writing and writing instruction, and to encourage regular conversation about the writing process. The Writing Studio's extensive programming includes individual consultations, creative writing groups, workshops focused on specific issues in academic writing, open- mike readings, and student-run writers' support groups.

The Writing Studio is located at 1801 Edgehill Avenue, Suite 112, and there is a satellite location in 217 Commons Center convenient to the first-year residence halls. The Writing Studio website can be accessed at

One-on-one tutoring in many subjects is available through Tutoring Services, also located at 1801 Edgehill Avenue. Consultations in the Writing Studio and in Tutoring Services are free to all undergraduates.

Computers

The following locations are available for walk-in use of computers and software:

Center for Second Language Studies (Furman Hall 001)

Stevenson computer lab and lounge (Stevenson Center 2200)

Wilson computer lab (Wilson Hall 120)

All of the college's computer labs and classrooms offer a wide variety of "courseware" and commercial "productivity

software," including word processing packages. Color printing and scanners are available in most of the labs. In addition to accessing software on the local servers, students may also connect to both campus services and the internet, including VUGmail and e-resources in the libraries, as well as course materials in Brightspace. While use of the above facilities is free, printing is charged per page.

The computer classrooms in the Center for Second Language Studies and Wilson Hall are available for walk-in use during the late afternoon and evening hours. Stevenson Center lab and lounge are card-accessible weeknights until 1:00

a.m. All lab hours are posted by semester at In addition to the college facilities, a few "kiosk" systems are available in the Sarratt Student Center. As a result, access to computers in the College of Arts and Science is extensive.

At last count, more than 98 percent of Vanderbilt students own a personal computer. Since all students also have a high-speed network connection, it is convenient for students to have their own system (please consult the ResNet guidelines for supported systems). However, most students will find that the college computing facilities provide all of the computing resources that are needed for success at Vanderbilt.

The Advising System

Entering first-year students are assigned advisers from CASPAR (College of Arts and Science Pre-major Academic Advising Resources Center). These "pre-major advisers" counsel students during their first three and one-half semesters, or until the students choose majors, when they are assigned faculty advisers in their major department or program. Pre-major advisers are specially trained to help students move efficiently through the requirements of AXLE (Achieving eXcellence in Liberal Education) and chart a course of study.

During the last two years of study, when a student is acquiring depth of knowledge in a major field, studies are guided by a specialist in that field. Students are encouraged to see their faculty advisers at any time, since the advisers are available for guidance and counseling and are faculty members with whom advisees may be studying.

All students are required to see their advisers prior to registration for each semester.

Advisers are generally happy to talk over any problems students may have, although their chief function is academic counseling. In addition, several members of the Dean's Office of Undergraduate Education, themselves teaching faculty members, have as their principal duty counseling students and referring them to sources of expertise on non-academic problems.

Public Lectures

THE BERRY LECTURES. Established in 1988 through the generosity of Kendall and Allen Berry, John and Shirley Lachs, Steve Turner, and Jim Burke. Three annual lectures—the Berry lecture, the Steve Turner lecture, and the Jim Burke lecture—are given by distinguished philosophers.

THE LOUIS JACOB BIRCHER LECTURE IN CHEMISTRY. Established in 1976 in recognition of Professor Bircher's forty-one years of service to Vanderbilt beginning in 1921. He served as the sole professor of physical chemistry until 1954, was chair of the Department of Chemistry from 1955 to 1961, and retired as professor emeritus in 1962. Family, colleagues, students, and friends of Professor Bircher have provided generous support for the series. The lecture is presented by a leading physical chemist.

THE BYRN HISTORY LECTURE. Established in 1986 and endowed by the late J. W. Byrn of Dickson, Tennessee, a student and admirer of the thought of the British historian Arnold Toynbee. Annual lectures deal with his fields of interest: world history, philosophy of history, and historiography.

THE FREDERICK LEROY CONOVER MEMORIAL LECTURE. First given in 1977 in honor of Vanderbilt's first analytical chemist. Professor Conover came to Vanderbilt in 1923 and remained for thirty-seven years. Lectures given by a distinguished analytical chemist are supported by family, colleagues, students, and friends of Professor Conover.

THE WALTER CLYDE CURRY SHAKESPEARE LECTURE. Inaugurated in 1982 and funded by one of his former students, this lectureship honors the late Walter Clyde Curry, distinguished medieval and Renaissance scholar, author of books on Chaucer, Shakespeare, and Milton, and for forty years beloved professor of English at Vanderbilt. Bringing to campus in alternate years eminent Shakespearean scholars and experienced Shakespearean performers, the lectureship gratefully recognizes Professor Curry's devoted service and lasting contributions to the university.

THE WAITE PHILIP FISHEL LECTURE. Established in 1974 as a tribute to Professor Fishel, who was known as an outstanding, popular teacher and was renowned for his research in metallurgy. Through the generosity of family, colleagues, students, and friends, the lecture is presented by a leading inorganic chemist.

THE HARRY C. HOWARD JR. LECTURESHIP. Established in 1994 at the Robert Penn Warren Center for the Humanities in honor of Harry C. Howard Jr. (B.A. 1951). The lectureship was endowed by Mr. and Mrs. Thomas Nash Jr. and Mr. and Mrs. George Renfro, all of Asheville, North Carolina, in honor of their longtime friend and attorney. The lectureship allows the Warren Center to bring an outstanding scholar to Vanderbilt annually to deliver a lecture on a significant topic in the humanities.

THE ARTHUR WILLIAM INGERSOLL MEMORIAL LECTURE. Established in 1973 to honor Arthur Ingersoll, professor of organic chemistry at Vanderbilt until his death in 1969. Each year contributions for this lecture are received from family, colleagues, students, and friends. A leading organic chemist is invited to present the lecture.

THE CARL K. SEYFERT LECTURE IN ASTRONOMY. Established in 1983 as part of the astronomy program's commemoration of the thirtieth anniversary of the Arthur J. Dyer Observatory. The lectureship recognizes the untiring efforts and contributions to astronomy made by Carl K. Seyfert, professor of astronomy and first director of the Dyer Observatory. A distinguished astronomer is invited to present this lecture every third year.

THE SHANKS LECTURES. Established in 1984 and named for E. Baylis Shanks and Olivia H. Shanks in honor of their accomplishments in the fields of mathematics and education and in recognition of their loyalty and service to Vanderbilt University, these lectures are presented on two successive days in the fall of each year. A special committee from the Department of Mathematics, influenced by the professional interests of Professor and Mrs. Shanks, chooses the lecturers from mathematicians of the highest reputation. The topics of the lectureship vary from year to year according to the area of specialization of the speaker chosen. The lectures have been endowed by members of the family of Olivia and Baylis Shanks.

THE FRANCIS G. SLACK LECTURES IN PHYSICS. Established in 1977 by the Department of Physics and Astronomy in honor of Francis G. Slack, former Landon C. Garland professor of physics and chair of the department, these lectures recognize his many contributions to physics. The series was first partially endowed by his colleagues and students and then with the generous help of Professor Slack. Each speaker gives one lecture of general interest to the university and one more specialized lecture for the department.

THE DAVID STEINE LECTURE. Established in 1978 as a memorial to David Steine, professor of business administration in the Department of Economics and Business Administration, by members of his family, friends, and

associates. The lecture is devoted to an economic problem of interest to the general public.

THE GERTRUDE VANDERBILT AND HAROLD S. VANDERBILT VISITING WRITERS PROGRAM. Established in the Department of

English in 1958 under the generous sponsorship of the late Mrs. Vanderbilt, this program has annually presented readings and public lectures by a poet, a novelist, and a critic—each of whom also visits classes and meets informally with members of the university and Nashville communities. Recent participants have included Dannie Abse, Madison Smartt Bell, Ellen Gilchrist, Alison Lurie, Czeslaw Milosz, Wyatt Prunty, Ann Thwaite, Anthony Thwaite, and Helen Vendler.

Degree Programs in the College

The Bachelor of Arts

The bachelor of arts degree is granted upon successful completion of the following five requirements:

1. At least 120 semester hours of creditable college work,
2. A final grade point average of at least 2.000,
3. Completion of the AXLE requirements,
4. Completion of one of the options listed under Area of Concentration,
5. Completion of at least 102 credit hours of course work within the College of Arts and Science, or a minimum of 90 credit hours for those students with a second major outside the College of Arts and Science.

Limitation on Credit Hours outside the College

Candidates for the bachelor of arts degree must successfully complete a minimum of 102 credit hours within the College of Arts and Science. Students who are completing an approved second major from one of the other schools within Vanderbilt are required to complete 90 credit hours within the College of Arts and Science for the bachelor of arts degree.

AXLE: Achieving eXcellence in Liberal Education

The Arts and Science core program of study—known as AXLE—is anchored in intensive practice in writing and a diverse thirteen-course component of classes that has been designed to allow maximum choice in course selection (based on student interests and achievement levels). At the same time, the distribution requirements of AXLE ensure that students will explore intellectually and academically the breadth of possibilities represented by the liberal arts.

What Is Liberal Education?

The study of the liberal arts—what is historically called a liberal education—is the oldest and most venerable form of higher education. It has proved itself perennially flexible and adaptive over the past centuries, and it remains the single best educational preparation for further, specialized study in the professions (medicine, law, education, business, et al.), as well as for doctoral work in the humanities and social sciences and advanced research in the sciences. The holistic focus of a liberal education encompasses all areas of human knowledge: the natural and social sciences, mathematics, foreign languages and cultures, the arts, and the humanities. The empirical disciplines guide us in our efforts to live most productively and efficiently. But the rest of the curriculum—the humanities and the arts—makes it possible to reflect upon the right use of the remarkable scientific knowledge we have acquired. In a liberal arts education, content is always considered in its larger context. Thus, the reflective and discursive aspects of study in the liberal arts call upon students to move beyond the mere acquisition of information to inquire into the deeper issues within their studies, and to connect their learning across disciplines and cultures as they live and work in the communal environment of Vanderbilt. The end product of a successful liberal arts education is a thoughtful citizen who is prepared to take up his or her rights and responsibilities in a democratic society, to analyze and critique received information, to articulate the issues at hand or the personal values at stake, and whose intellectual life is marked by ongoing internal dialogue about the quality and meaning of life for him or her, as well as for the community at large.

Fear No Learning!

The interdisciplinary inclination of many courses in the College of Arts and Science is an ideal training ground for learning new methodologies for problem solving in the complex, global world of the 21st century. Here, students may work with biologists and psychologists in the Neuroscience program; study with creative writers, sociologists, historians, or cinema and media arts scholars in the African American and Diaspora Studies program; or take a class, team taught, by professors from the School of Music and the Department of English in the College of Arts and Science. Over the course of a Vanderbilt education, students challenge themselves with the academic demands of the classes they select, and are challenged by new ideas and unfamiliar ways of looking at issues. Exploring beyond the boundaries of one’s intellectual comfort zone in order to admit new ideas is one of the most important aspects of higher education. The time and effort devoted to selecting thoughtfully the courses that will satisfy AXLE requirements prepare students for the more specialized study that they undertake in their major (or majors).

How to Get Started

The program of studies is divided approximately into thirds:

1/3 — courses to meet the requirements of the Writing and Liberal Arts requirements;

1/3 — courses required to complete the chosen major;

1/3 — electives, which will complete the 120 credit hours required for graduation.

These divisions are approximate and may differ for individual students.

For a student's first semester, most selections should be from the first group, courses that will fulfill the Writing and Liberal Arts requirements. Academic background, career goals, and general talents and interests will affect choice of courses.

Upon graduation, students in the College of Arts and Science will receive a bachelor of arts degree upon completion of the other four requirements in addition to AXLE: fulfillment of requirements for one major, a 2.000 average in the major, 120 cumulative earned credit hours, and a 2.000 average overall.

Where to Get Information

In addition to this catalog's sections on the rules, regulations, and policies of the College of Arts and Science as well as descriptions of the academic programs of all the undergraduate schools, students may refer to the booklet, *Understanding Your Core Curriculum & Pre-major Advising,* a College of Arts and Science manual for entering students.

Where to Get Advice

Entering students are assigned pre-major advisers from CASPAR (College of Arts and Science Pre-major Academic Advising Resources Center). Pre-major advisers are carefully selected and receive intensive training on how to help students proceed effectively through the requirements of AXLE and chart a course of study. These advisers will counsel students through their first three and one-half semesters or until they declare a major. At that time, students are assigned faculty advisers in their major departments. Students are encouraged to see their advisers at any time; they must, however, consult their pre-major adviser three times during the first year: during summer before the fall semester, prior to the opening of enrollment windows for the spring semester, and prior to the opening of enrollment windows for the fall semester of their second year. Prior to their first semester, entering first-year students must consult in June with their pre-major adviser who will assist with course selections for registration for the fall and begin to understand each student's interests and goals. (This initial contact is typically via phone and/or email.)

What Is AXLE?

AXLE is the acronym for Achieving eXcellence in Liberal Education. It is the core curriculum that all students in the College of Arts and Science must fulfill. The AXLE curriculum is flexible and very user-friendly. It consists of two parts: the Writing Requirement and the Liberal Arts Requirement.

The Writing Requirement has four segments: completion of English 1100 or demonstration of basic skills in English composition; completion of a First-Year Writing Seminar; completion of a writing course (indicated by a "W") no later than the fourth semester in residence; and completion of a second writing course (indicated by a "W") or an approved course in oral communication (CMST 2100, 2110, or 2120).

The Liberal Arts Requirement is composed of a total of thirteen courses taken at Vanderbilt, and distributed across six categories. The First-Year Writing Seminar and all writing courses, and approved Oral Communication courses are also counted in the thirteen-course Liberal Arts Requirement.

1. The Writing Requirement (three to four courses)
    a. English Composition ENGL 1100 (appropriate test score or one course)
    b. First-Year Writing Seminar (one course)
    c. a W course before the end of the fourth semester (one course)
    d. a second W course or approved Oral Communication course (one course)
2. The Liberal Arts Requirement (13 courses)
    a. HCA — Humanities and the Creative Arts (three courses)
    b. INT — International Cultures (three courses)
    c. US — History and Culture of the United States (one course)
    d. MNS — Mathematics and Natural Sciences (three courses)
    e. SBS — Social and Behavioral Sciences (two courses)
    f. P — Perspectives (one course)

All students must also complete requirements for at least one major (between 27 and 48 credit hours of course work) and earn a minimum number of 120 earned credit hours in order to graduate.

Overview of AXLE

AXLE consists of two parts: the Writing Requirement (including a First-Year Writing Seminar) and the Liberal Arts Requirement.

The First-Year Writing Seminar

The First-Year Writing Seminar is an integral part of the first-year experience in the College of Arts and Science. Through these seminars, first-year students engage in independent learning and inquiry in an environment in which they can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. The small-group nature of these seminars allows for direct student-faculty interaction that stresses training in techniques of scholarly inquiry. The students' written work and oral presentations are subject to thoughtful critical review by the faculty member, providing feedback that can be used to reconsider the manner in which they articulate their ideas and to refine their skills in these areas. Thus, first-year students learn not only about the subject matter of the seminar, but are also exposed to new methods of acquiring knowledge, different ways of expressing and sharing ideas, and unique opportunities to participate in critical inquiry.

All first-year students must enroll in a First-Year Writing Seminar. (First-Year Writing Seminars in the College of Arts and Science are numbered 1111.) This course may be taken during the fall or the spring semester. Students are permitted to enroll in only one First-Year Writing Seminar per semester. All First-Year Writing Seminars also count in their appropriate distribution areas within the Liberal Arts Requirement, but a second seminar will not count toward the writing requirement. Students who transfer into the College of Arts and Science (whether from another school at Vanderbilt or from another college or university) do not complete a First-Year Writing Seminar. Students beyond their second semester in residence may not register for First-Year Writing Seminars, nor may First- Year Writing Seminars be repeated after completion of the second semester in residence.

The Writing Requirement

Excellent communication skills, including the ability to articulate ideas and defend positions in writing, will be paramount for the 21st-century graduates of Vanderbilt University; therefore, all students in the College of Arts and Science must successfully complete the Writing Requirement.

a. All students must demonstrate competence in English composition. Appropriate skills in composition are essential to successful progress at the Competence is demonstrated by completion of ENGL 1100 or any of the following test-based or transfer-credit satisfiers:
    i. SAT: Combined score of at least 1220 on the Writing and Critical Reasoning sections, with a minimum score of 500 on each (test taken prior to March 2016).
    ii. SAT: Score of at least 660 on the Evidence-Based Reading and Writing section, with a minimum score of 27 on the Reading section and a minimum score of 28 on the Writing and Language section (test taken March 2016 or later).
    iii. ACT: Score of at least 30 on the English portion (beginning October 2016).

iv. AP: Minimum score of 4 on the English Language or English Literature exam.
v. IB: Minimum score of 6 on the Higher level English
vi. Transfer credit for English 1100
vii. Transfer credit for English 1210W, 1220W, 1230W, 1250W, 1260W, 1270W, or 1300W. (If used to satisfy the English composition requirement, the transfer credit does NOT also count as the W course required to achieve junior standing.)
viii. Score of at least 55 on the Tailwind English proficiency exam

b. First-Year Writing Seminar (see above).
c. All students must successfully complete at least one Arts and Science writing course (indicated by a "W") at Vanderbilt University, regardless of AP or IB credits, SAT scores, or ACT scores earned prior to matriculation. The 1000-level writing-intensive courses emphasize general writing skills within the context of discipline-specific subject matter. The 2000 and higher-level writing-intensive courses foster advanced, discipline-specific writing skills. Departments or programs that offer these courses determine their specific writing In 2000 or higher-level W courses, continued attention to the process of writing is included in the classroom. Students receive regular feedback on their writing that will contribute toward enhancing writing skills appropriate to specific disciplines. The process of revising written work allows students to reflect on the writing process; writing tutorials may also be included. All students are required to complete a W course (other than ENGL 1100 or a First-Year Writing Seminar) **no later than the fourth semester.** All Arts and Science W courses also count in their appropriate distribution areas within the Liberal Arts Requirement.
d. All students must successfully complete either a second Arts and Science W course (other than ENGL 1100 or a First-Year Writing Seminar), or an approved course in oral communication (CMST 2100, 2110, 2120) at Vanderbilt University, regardless of AP or IB credits, SAT scores, or ACT scores earned prior to Oral communication courses focus on developing improved public speaking skills. These courses introduce students to the principles and practices of public discourse and reasoned argument. Attention to the process of effective oral communication is integral to these classes. Students receive regular speaking assignments throughout the semester and regular feedback to enhance effective speaking skills. **All students must complete Part d of the Writing Requirement before graduation.**

The Liberal Arts Requirement

The Liberal Arts Requirement consists of successful completion of thirteen courses from the College of Arts and Science. Most courses in the College of Arts and Science fulfill one of these Liberal Arts requirements. Courses must carry three or more credits to count toward the AXLE Liberal Arts Requirement. Although some courses may be appropriate to more than one requirement, each course will fulfill only one requirement. These thirteen courses must be distributed as outlined below. They must be taken from at least seven departments or subject areas.

a. Humanities and the Creative Arts — HCA (3 courses)

Courses in the humanities and the creative arts challenge students to examine their personal understanding of life and how their individual experiences overlap with those of the rest of humankind. These courses testify to the varying ways in which people think, form values, confront ambiguity, express spiritual and aesthetic yearnings, and grapple with moral and ethical problems. By analyzing and interpreting literary, philosophical, religious, or artistic works, students examine the foundations of human experience. By producing original artistic works in imaginative writing, studio art, theatre, film, music, and dance, students have the opportunity to connect the universal sources of human inspiration with their own creative processes.

b. International Cultures — INT (3 courses)

The study of international cultures provides students with a basis for understanding the diversity of experiences and values in our contemporary, global society. Options in this category include not only international history and cultural studies courses, but also courses in literature, cinema and media arts, the social sciences, art, music, and languages. Students may satisfy this requirement by choosing courses that focus on the history and culture of a single society or time period in human history and/or that represent a broad spectrum of different human societies and time periods.

Language courses introduce students to the language of a different culture and provide insight into that culture in ways that are not possible to achieve through detached study. At intermediate and advanced levels, students are able to explore the culture in depth, using the language itself to read, discuss, and write about its various aspects. Even at the most basic level, exposure to the language of a different culture prepares students to think and act in terms of living in a global community.

Intermediate and advanced language courses prepare students for study abroad programs, which the College of Arts and Science strongly recommends. A maximum of one course in this requirement may be satisfied through study abroad in a Vanderbilt-approved program. A summer study abroad program must earn 6 or more credit hours to satisfy this requirement.

The Global Education Office maintains a list of pre-approved programs.

Note: All students who study abroad must register their travel in advance with Vanderbilt's international security provider. Registration is completed on your behalf if you enroll in a program offered through the Global Education Office. Otherwise, information is available on the GlobalVU website: vanderbilt.edu/global.

All students must complete three courses in this category, irrespective of previous language study or proficiency in a language other than English. At least one of the three courses presented in fulfillment of this category must be a second-semester (or higher) language acquisition class taught at Vanderbilt University (or through the Duke–UVa–Vanderbilt Partnership for Less Commonly Taught Languages), unless the student successfully demonstrates proficiency in a language other than English at or above the level achieved by second-semester language acquisition classes taught at Vanderbilt University. Students may demonstrate proficiency in a number of ways: SAT Subject Test scores (French, 540; German, 470; Hebrew, 530; Italian, 540; Japanese with Listening, 440; Latin, 530; Spanish, 520); by appropriate score on proficiency tests (written and oral) administered by the Tennessee Language Center; or with AP or IB credit in a foreign language. The first semester of an introductory language acquisition class in any language a student has studied for at least two years in high school, or in which a student transfers credit from another institution, cannot be used in partial fulfillment of this requirement. Intensive elementary language courses that cover the content of two semesters in one shall count as one course toward this category.

Students who, because of special ability and achievement, are admitted to the College of Arts and Science without the normally required two years of one foreign language in high school must enroll in a foreign language course during their first semester and must remain continuously enrolled until they successfully complete a full year of one foreign language. They must complete this requirement by the end of their fourth semester in the College of Arts and Science.

c. History and Culture of the United States — US (1 course)

The study of the history and culture of the United States provides students with a basis for understanding the American experience and the shaping of American values and viewpoints within the context of an increasingly global society. Interpreting history and culture in the broadest sense, options in this category include traditional history and cultural studies courses, but also courses in literature, cinema and media arts, the social sciences, art, and music, which illuminate historical periods or cultural themes in United States history. Students may satisfy this requirement by choosing a course that focuses on the history and culture of a single social group or time period in American history and/or that represents a broad spectrum of different social groups and time periods.

d. Mathematics and Natural Sciences — MNS (3 courses, one of which must be a laboratory science)

Courses in mathematics emphasize quantitative reasoning and prepare students to describe, manipulate, and evaluate complex or abstract ideas or arguments with precision. Skills in mathematical and quantitative reasoning provide essential foundations for the study of natural and social sciences. Students are generally introduced to mathematical reasoning through the study of introductory courses in calculus or probability and statistics.

Courses in the natural sciences engage students in hypothesis-driven quantitative reasoning that helps to explain natural phenomena, the roles of testing and replication of experimental results, and the processes through which scientific hypotheses and theories are developed, modified, or abandoned in the face of more complete evidence, or integrated into more general conceptual structures. Laboratory science courses engage students in methods of

experimental testing of hypotheses and analysis of data that are the hallmarks of the natural sciences. Natural science courses prepare students to understand the complex interactions between science, technology, and society; teach students to apply scientific principles to everyday experience; and develop the capacity to distinguish between science and what masquerades as science.

e. Social and Behavioral Sciences — SBS (2 courses)

Social scientists endeavor to study human behavior at the levels of individuals, their interactions with others, their societal structures, and their social institutions. The remarkable scope represented by these disciplines extends from studying the underpinnings of brain function to the dynamics of human social groups to the structures of political and economic institutions. The methods employed by social scientists are correspondingly broad, involving approaches as varied as mapping brain activity, discovering and charting ancient cultures, identifying the societal forces that shape individual and group behavior, and using mathematics to understand economic phenomena. By studying how humans and societies function, students will learn about individual and societal diversity, growth, and change.

f. Perspectives — P (1 course)

Courses in Perspectives give significant attention to individual and cultural diversity, multicultural interactions, sexual orientation, gender, racial, ethical, and religious issues within a culture across time or between cultures, thereby extending the principles and methods associated with the liberal arts to the broader circumstances in which students live. These courses emphasize the relationship of divergent ethics and moral values to contemporary social issues and global conflicts.

The Major

All students must successfully complete a course of study leading to one of the approved major programs in the College of Arts and Science, or successfully complete an individually designed interdisciplinary major designed in consultation with College of Arts and Science faculty and approved by the Committee on Individual Programs in the College of Arts and Science.

AXLE Curriculum Course Distribution

The distribution of Arts and Science courses into AXLE categories is available in YES. Using the advanced-class-search dialog box, use the pull-down menu under “Class Attributes” to select an AXLE category.

AXLE, the Major, and the Optional Minor

Courses used to satisfy requirements of AXLE may also be used to satisfy requirements of the major or the optional minor.

Advanced Placement under AXLE

With the exception of basic English composition and the foreign language proficiency requirements, no AXLE requirement may be fulfilled with any form of advanced placement credit (AP, IB, A-level, etc.).

Transfer Credit under AXLE

Generally, only courses taken in the College of Arts and Science may be used toward AXLE; however, any college course credit earned **prior** to graduation from high school, and transfer credit earned **before** admission to Vanderbilt, may be used toward fulfilling AXLE requirements.

Area of Concentration

During the junior and senior years, much of the student's work is concentrated in one large unit of intellectually related courses. The program of concentration may be arranged through a single major, an interdisciplinary major, or a double major. Each of the three options is described below. A triple major may be declared with the approval of the Administrative Committee.

Major Field

Under this plan, the student majors in one of the recognized fields. There shall not be fewer than 27 credit hours in the major field, but a given department may require up to 48 credit hours. Students may take more than the required number of credit hours in any major; any given department, however, may limit the total permissible credit hours in a discipline.

For graduation, a student must have achieved a grade point average of at least 2.000 in all classes taken in the major. This set of courses includes all courses a student takes in the department or program of the major and all courses a student takes outside the department or program that may count toward the major. All courses that are listed as fulfilling credit hours required for the major, as listed in the *Undergraduate Catalog,* are included in calculating the grade point average in the major.

Within the framework of these general requirements, each department has its own policies governing major work, which are published elsewhere in this catalog or otherwise available to students.

Academic programs of the College of Arts and Science are varied and broad in scope, with departmental majors offered in the following fields:

African American and Diaspora Studies	History
Anthropology	History of Art and Architecture
Architecture and the Built Environment	Jewish Studies
Art	Law, History, and Society
Asian Studies	Mathematics
Biological Sciences	Medicine, Health, and Society
Chemistry	Molecular and Cellular Biology
Cinema and Media Arts	Philosophy
Communication Studies	Physics
Earth and Environmental Sciences	Political Science
Ecology, Evolution, and Organismal Biology	Psychology
Economics	Religious Studies
English	Russian Studies
Environmental Sociology	Sociology
French	Spanish
Gender and Sexuality Studies	Spanish and Portuguese
German Studies	Theatre

Defined Interdisciplinary Programs

Students may also major in defined interdisciplinary programs (listed below). There shall not be fewer than 27 credit

hours in the major field, but a given program may require up to 48 credit hours. The student must achieve at least a 2.000 grade point average in all work taken in the major.

American Studies	German and European Studies
Biochemistry and Chemical Biology	Italian and European Studies
Classical and Mediterranean Studies	Latin American Studies
Communication of Science and Technology	Latino and Latina Studies
Economics and History	Neuroscience
European Studies	Public Policy Studies
European Studies: Russia and Eastern Europe	Spanish and European Studies
French and European Studies	

Students may combine an interdisciplinary major with a major in one of the recognized fields listed at the beginning of this section.

Declaration of the Area of Concentration

Students may formally declare a major at any time during the third semester of residence and must do so no later than the Friday before Spring Break of the fourth semester. The student selects a department or interdisciplinary program and contacts that department or program for assignment to an adviser. Students who wish to develop an individually designed interdisciplinary program apply to the associate dean who chairs the Committee on Individual Programs.

Each fall a program is arranged that provides for consultation of sophomores with department chairs, for the purpose of helping students select a major. Sophomore students who have not declared a major should participate in this program if they intend to attain junior standing before the next spring.

Students should declare their intention to pursue specific majors by completing forms available in the Dean’s Office of Undergraduate Education as well as the various departmental and program offices. Departments and programs assign advisers to students who declare majors in their respective areas. Students have the responsibility to know and satisfy all requirements for majors that they intend to complete. When the student’s major has been registered, access to the student’s academic record is transferred from the pre-major adviser to the new major adviser, with whom they should work closely.

Students may not add a major(s) past the fifth class-day of the first semester of the senior year.

Individually Designed Interdisciplinary Majors

This plan permits students to contract for an individually designed program of concentration consisting of at least 48 credit hours of approved work. The program is constructed around a coherent academic purpose and may draw together the academic resources of a number of departments and schools. The program’s purpose may include topical, period, or area studies, and must be consistent with the philosophy underlying a liberal arts education (see the “What is Liberal Education?” section of this catalog). The program should not be designed with a focus on pre-professional training (e.g., pre-business, pre-law, or pre-medicine). The student may be required to achieve a standard of proficiency in appropriately related areas such as foreign languages or mathematics in addition to the 48 credit hours constituting the program of concentration.

Each student must identify a major adviser who will offer advice and guidance. The major adviser must be a professor or full-time senior lecturer in the College of Arts and Science.

The student's plan for an individually designed interdisciplinary major is a statement of required courses. Furthermore, because of the nature of interdisciplinary majors, all courses that have previously been included in the student's plan are considered to be part of the major discipline. The student must achieve at least a 2.000 grade point average in all courses that are (or have been) part of the plan.

Normally, no more than three introductory-level courses will be counted toward the interdisciplinary major.

Students may not add a major(s) past the fifth class day of the first semester of the senior year.

Double and Triple Majors

This program permits a student to concentrate in two or three fields, which may or may not be intellectually related. With approval of the departments concerned, the student completes all of the requirements stipulated for the majors. Triple majors require approval of the Administrative Committee.

Each A&S major must include at least 24 credit hours that are being counted solely toward the major. This rule also applies to students who combine (in a double or triple major) a non-interdisciplinary major with an interdisciplinary major.

Approved Second Majors Outside the College

All undergraduate courses, majors, and minors offered by Blair School of Music, School of Engineering, and Peabody College are approved for students in the College of Arts and Science. See the appropriate sections of the *Undergraduate Catalog* under each school for details. Arts and Science students with a second major from another Vanderbilt undergraduate school must earn a minimum of 90 credit hours in Arts and Science. Consultation with the student's Arts and Science major adviser is especially important.

Additional Programs in the College of Arts and Science

For information on the College Scholars program and departmental honors, please see the section titled Honors.

The Optional Minor

A minor is a program within a recognized area of knowledge offering students more than a casual introduction to the area but less than a major in it. Although the completion of a minor is not a degree requirement, students may elect to complete the courses specified for one or more minors. A student who completes all designated courses in a minor with a grade point average of at least 2.000 will have the minor entered on the transcript at the time of graduation.

Minors may be combined with any departmental major or interdisciplinary major, but minors may not be earned in the department or program of the major. Each minor must, however, include at least 15 credit hours that are being counted solely toward the minor. Courses may not be taken on a P/F basis if they are offered in the department of the minor or if they are being counted toward an interdisciplinary minor (see Academic Regulations).

Minors consist of a minimum of five courses of 3 or more credit hours each. Many minors require a greater number of credit hours and specific courses. When a minor is offered in a discipline that offers a major, only those courses that count toward the major may be counted toward the minor.

Students should refer to the appropriate sections of this catalog for specific requirements. Minors available at present are listed below.

Students should declare their intention to pursue specific minors by completing forms available in the Dean’s Office of Undergraduate Education as well as the various departmental and program offices. Departments and programs assign advisers to students who declare minors in their respective areas. Students have the responsibility to know and satisfy all requirements for minors that they intend to complete.

Students may not add or change a minor after the final day of classes in the second semester of their senior year.

Optional minors are offered in the following fields and interdisciplinary programs:

African American and Diaspora Studies	English	Mediterranean Studies
American Studies	Environmental and Sustainability Studies	Nanoscience and Nanotechnology**
Anthropology	European Studies	Neuroscience
Arabic Language	French	Philosophy
Architecture and the Built Environment	Gender and Sexuality Studies	Physics
Art	German Studies	Political Science
Asian Studies	History	Portuguese
Astronomy	History of Architecture	Psychology
Biological Sciences	Islamic Studies	Religious Studies
Brazilian Studies	Italian Studies	Russian Studies
Chemistry	Japanese Language and Culture	Scientific Computing**
Chinese Language and Culture	Jewish Studies	Sociology
Cinema and Media Arts	Korean Language and Culture	South Asian Language and Culture
Communication of Science and Technology	Latin American Studies	Spanish
Communication Studies	Latino and Latina Studies	Spanish for the Professions
Data Science*	Mathematics	Theatre
Earth and Environmental Sciences	Medicine, Health, and Society	Undergraduate Business Minor ^
Economics	Mediterranean Archaeology	

* Administered by the four undergraduate schools

**Administered by the School of Engineering in collaboration with the College of Arts and Science

^Administered by the four undergraduate schools and the Owen Graduate School of Management

Approved Minors Outside the College

Arts and Science students are permitted to pursue a second major and/or a minor that has been approved by the faculties of the other Vanderbilt undergraduate schools: the Blair School of Music, the School of Engineering, and Peabody College of Education and Human Development. See the appropriate sections of the Undergraduate Catalog under each school for details. Minors may not be earned in the department or program of the major.

Undergraduate Research

All students have ample opportunity to participate in faculty research projects or to pursue research projects independently, both on campus and at remote sites. Such research has led to the publication of coauthored or student-authored papers and other presentations to the scholarly community. Summer and academic year research by undergraduates in all fields may be subsidized by the university or the College of Arts and Science. Students should contact the director of undergraduate studies in the field of interest for more information.

Study Abroad Programs

Vanderbilt offers study programs for all undergraduate students from Arts and Science, Blair School of Music, School of Engineering, and Peabody College to provide undergraduates immediate contact with cultures different from their own and to aid in the mastery of foreign languages. Students interested in applying for study abroad should consult their advisers to determine whether all degree requirements can be completed on schedule.

Brochures on all approved programs are available in the Global Education Office in Room 115, Student Life Center.

GEO also maintains a website, vanderbilt.edu/geo. The study abroad programs are described in more detail in the Special Programs for Undergraduates section of this catalog.

When choosing programs in a city for study abroad, College of Arts and Science students may only apply to the Vanderbilt-approved overseas program(s). The College only accepts credit from international schools and programs that have been approved by Vanderbilt faculty, and for which the University has a contract or agreement.

Pre-Professional Studies

Medicine

Students interested in the study of medicine should plan their undergraduate programs in consultation with Dr. Michelle Grundy, health professions adviser. There is no formal premedical program of courses in the College of Arts and Science or elsewhere at Vanderbilt. Each student should plan a program to meet individual needs. The program should include whatever courses may be necessary to meet medical school admission requirements, all courses required for the major, all AXLE requirements, and elective options. Students may choose majors from any of the four undergraduate colleges, and may elect to pursue a double major or an interdisciplinary program of concentration.

A student who plans to apply for admission to the Vanderbilt University School of Medicine, as well as other medical schools, may choose either of the following options:

1. A student may qualify for admission with a B.A. degree, whether completed in three years or in four. Minimum requirements for admission generally would be met by completing at least two semesters of English, four semesters of chemistry including organic, two semesters of biology, two semesters of physics, and at least one semester of calculus/math. Since prerequisites may vary across medical schools, students are urged to consult the online resource, *Medical School Admission Requirements* (MSAR) published by the American Association of Medical Schools (at aamc.org) for school-specific information.

In light of the Medical College Admissions Test (MCAT) changes that took effect in 2015, it is recommended that students take one semester of biochemistry and one semester of introductory statistics. Additionally, through course work or self-directed study, students will need to be knowledgeable in basic concepts of psychology, sociology, and bioethics.

For more information, students are advised to visit the website of the Health Professions Advisory Office (vanderbilt.edu/hpao) and refer to the links for 1) “Premedical Preparation” and 2) “Threading a path through premedical expectations.”

2. A student may qualify as a three-year student in the senior-in-absentia program (see Senior-in-Absentia in this catalog).

Dentistry

Students interested in predental studies should plan their undergraduate program in consultation with Dr. Michelle Grundy, health professions adviser. There is no formal predental program of courses at Vanderbilt. Predental studies should include courses necessary to meet dental school admission requirements, all courses required for the major, all AXLE requirements, and elective options. Students may choose majors from any of the four undergraduate colleges. They may also elect a double major or an interdisciplinary program of concentration. A student may apply to dental school under the senior-in-absentia program (see Senior-in-Absentia in this catalog) or apply for admission

after three years of college work without a degree.

Any student contemplating application to dental school should take at least two semesters of English, four semesters of chemistry including organic, two semesters of biology, two semesters of physics, and at least one semester of calculus/math. Since prerequisites may vary across dental schools, students are urged to consult the *ADEA Official Guide to Dental Schools* published by the American Association of Dental Schools.

Nursing

Students interested in developing a program that could lead to a master of science in nursing are advised to consult the Office of Admissions in the School of Nursing.

Architecture

Undergraduate students in the College of Arts and Science expecting to pursue architecture at the graduate level should complete at least one year of analytic geometry and calculus and one year of physics. Students may select any major but would want to include courses that emphasize a broad sense of art and architectural history, including courses in studio art. Before applying to specific schools of architecture, they would develop a portfolio of creative work. Further information is available from the pre-architecture advisers: Professor Vesna Pavlović, Department of Art, and Professor Kevin Murphy, Department of the History of Art and Architecture.

Engineering

Undergraduate students in the College of Arts and Science expecting to pursue engineering at the graduate level should normally major in a natural science or mathematics and, at a minimum, should complete two years of calculus or its equivalent, one year each of chemistry and physics, and at least an additional year of a natural science or mathematics. A minimum of one year of computer science is highly desirable. Students should seek specific information concerning admission from the engineering school of their choice as early as possible, preferably by the end of the sophomore year, to assure optimum preparation for entry into that school. Standards for admission vary, but usually a 3.00 average or better is required.

Law

There is no formal program of prelaw studies at Vanderbilt. Most law schools have no specific requirements for a prelaw curriculum but place great emphasis on the development of the student's ability to read and comprehend accurately, thoroughly, and rapidly; to speak and write clearly and correctly; to think precisely; and to analyze complex situations and weigh and appraise their several elements. The development of analytical skills and of mature study habits is vital. A broad cultural background is important—since law touches life at every point, every subject in the college curriculum may bear on the lawyer's work. Students interested in the study of law should plan their undergraduate programs in consultation with Dean Carrie Russell, prelaw adviser, in the Dean's Office of Undergraduate Education.

Teacher Education

Details will be found in Licensure for Teaching in the Peabody College section of this catalog.

Internships

Students may earn academic credit for the work of internships in the College of Arts and Science on a Pass/Fail basis through interdisciplinary or departmental internships. Credit hours earned will not count toward major or minor

requirements or toward AXLE, but will count as part of the total credit hours required for graduation. Students obtain their own placement and faculty adviser who works with them to develop a list of readings or research agenda for the internship, which must be approved by the director of internships in the College of Arts and Science (Associate Dean Daniel Morgan). The necessary forms for earning academic credit for an internship may be obtained from the Dean's Office of Undergraduate Education in 350 Buttrick Hall, although students register for internships through their respective school. The deadline for submitting registration forms to the office of Dean Jones for internship courses taken during summer term and fall semester is May 1. Students expecting to intern during the spring semester should submit registration forms by January 1.

Finding an Internship

Students searching for an internship opportunity locally or elsewhere should contact the Career Center.

Interdisciplinary Internships

INDS 3880 (fall, spring), 3884 (summer). 1 credit hour (repeatable)

Any student who is at least a sophomore and in good academic standing may earn one credit hour per semester or summer for an internship under this designation. This course may be repeated twice for a maximum of 3 credit hours exclusively on a Pass/Fail basis.

Departmental Internships

Maximum of 15 credit hours (may be taken only once)

Under this option students from any discipline may earn academic credit for internships in the departments listed below if they meet the minimum GPA requirements and have 6 credit hours of prior work in the department in which they wish to intern. Students are responsible for securing a faculty adviser for the internship and developing an academic plan of work for the internship opportunity, both of which must be approved by the director of undergraduate studies in the department in which the internship is housed. (In some instances, the DUS will serve as the faculty adviser for all internships taken in that discipline.) All internships under this designation are taken concurrently with a research and/or readings course. The latter is taken on a graded basis and may count toward requirements for a major or minor. Students should consult the director of undergraduate studies in the department of interest to obtain additional information about internships in that discipline. The following departments offer up to 15 credit hours of academic credit per semester or summer for the following courses (internship courses are offered during FALL, SPRING, and SUMMER sessions):

AADS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

AMER 3880–3881. 3880: Internship Training [1–6], 3881: Internship Readings and Research [3–6].

ANTH 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

BCB 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

CLAS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

CMA 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

EES 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

FREN 3880–3881. 3880: Internship Training in France [1], 3881: Internship Readings and Research in France [3].

GSS (formerly WGS) 3880, 3882–3883. 3880: Internship Training [1–9], 3882: Internship Readings [1–3], 3883: Internship Research [1–3].

HART 3880, 3883. 3880: Internship Training [1–9], 3883: Internship Research [1–3].

HIST 3880, 3882–3883. 3880: Internship Training [3–9], 3882: Internship Readings [3], 3883: Internship Research [3].

JS 3880, 3883. 3880: Internship Training [1–3], 3883: Internship Research [3].

LAS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3-6].

MHS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

PSCI 3880, 3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1-6].

PSY 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

RUSS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

SOC 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

SPAN 3880–3881. 3880: Internship Training in Spain [1], 3881: Internship Readings and Research in Spain [3].

More complete information regarding departmental internship courses may be found in the course descriptions in this catalog.

Cost of an Internship

Internships taken during the fall or spring semester will fall under the normal tuition charge unless the student falls below 12 or exceeds 18 credit hours during the semester. In both instances, the hourly tuition charge will apply with permission for an underload/overload from the appropriate academic dean. Students will be charged for internships taken during summer on the basis of the hourly tuition rate for summer school unless approved in advance to receive the internship subsidy (see the Career Center website).

Combined B.A./M.A. (4+1) Program

The College of Arts and Science offers students in many departments and programs the opportunity to earn both the bachelor’s degree and the master’s degree in a shorter period of time and at less cost than is normally the case.

Exceptional students in the College of Arts and Science can obtain both degrees in an expedited period, typically within, but not less than, five years.

The usual period of study for both the bachelor’s and the master’s degree is six years. Through the 4+1 option, the student and her or his adviser plan a five-year program of study. It is important to note that there is no provision for obtaining both degrees in a period shorter than five years. The program is intended for selected students for whom the master’s degree is sufficient preparation for their career goals, is desirable as a goal in itself, or is viewed as additional preparation before pursuing a doctorate or a professional degree.

The areas of study available for the Combined B.A./M.A. (4+1) option within Arts and Science are determined by individual departments and programs, which also determine the policies and guidelines to be followed. Students will be admitted to the Combined B.A./M.A. program only by the invitation and the approval of the department or program.

Programs of Study

The 4+1 option is currently available in the following departments and programs: English; French; German; History;

History of Art and Architecture; Latin American Studies; Mathematics; Medicine, Health, and Society; Philosophy; Political Science; and Psychology. Students are welcome to discuss the Combined B.A./M.A. (4+1) option with any of these departments and programs.

Admissions Overview

The Combined B.A./M.A program allows Vanderbilt University students to study for both degrees typically, but not necessarily, in the same department. Undergraduates with strong academic records may apply for admission to the program after the first semester of their junior year. Qualifying students are normally accepted into the program in the second semester of the junior year.

To apply for admission, students will first consult with the Dean's Office of Undergraduate Education (350 Buttrick Hall), and then submit to the prospective graduate department or program a "Petition to Apply to the Combined B.A./M.A. (4+1) Degree Program" (available at as.vanderbilt.edu/academics/specialdegree/4plus1.php), a statement of purpose, a formal application to the Graduate School, a preliminary program proposal, two letters of recommendation from Vanderbilt faculty, and a current transcript. Application forms are available for download or can be completed online at vanderbilt.edu/gradschool. GRE scores or other admissions requirements may be specified by the prospective department. Admission to the 4+1 option is highly selective. An accomplished academic record, a demonstrated commitment to pursue graduate study, and a strong endorsement from Vanderbilt faculty are key elements to the successful applicant. Students will be provisionally accepted as graduate students, pending completion of all undergraduate requirements. Graduate student status will apply in the fifth year.

Advising

Prospective students should discuss with one of their advisers general information on the program and whether this program is appropriate to their long-term goals. All students are encouraged to discuss their plans and goals with their undergraduate pre-major and major adviser. Especially in cases where the intended graduate program differs from the undergraduate major, the student is further encouraged to seek advice from the advisers in the graduate program.

Curriculum

Students in a 4+1 program must satisfy all requirements for both degrees. Advanced Placement (AP) credits will often be used toward satisfying general curriculum requirements, for a maximum of 18 credit hours. The principal distinction between this program and the standard graduate program is two-fold: (1) students are allowed to take master's courses while completing the bachelor's degree, and (2) students are thereby enabled to complete both degrees within five years.

In order to complete the program in five years, students will be expected to complete most, if not all, of the requirements for their undergraduate degree by the end of the first semester of the senior year. Until all baccalaureate requirements are fulfilled, the student will follow College of Arts and Science undergraduate policies and procedures. It is also suggested that students begin taking graduate courses toward the master's degree in the second semester of the senior year. Most graduate programs participating in this option have a non-thesis plan of study requiring 30 graduate credit hours in addition to the requirements for the undergraduate degree. An average load per semester as a graduate student is 9–12 credit hours.

Scholarships and Financial Aid

Students who are receiving scholarships or other forms of financial aid as a Vanderbilt undergraduate are advised that such aid applies in most cases only toward the completion of the bachelor's degree or the first four years of their studies (which may include their taking some graduate courses during their senior year). Students wishing to pursue the 4+1 option should seek support for their fifth year of study through student loans and other financial aid.

For additional information, contact A&S Deans' Office, 350 Buttrick Hall, or consult the website as.vanderbilt.edu/academics/specialdegree/4plus1.php.

Honors in the College of Arts and Science

Founder's Medal

The Founder's Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the Dean after consideration of faculty recommendations and overall academic achievements, as well as grade point averages of the year's highest ranking summa cum laude graduates.

Latin Honors Designation

Honors noted on diplomas and published in the Commencement program are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years' Arts and Science graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years' Arts and Science graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years' Arts and Science graduating seniors.

College Scholars Program

The College Scholars Program is the honors program for the College of Arts and Science. All first-year students in the College of Arts & Science are invited to apply at the end of their first semester. Students are selected to participate in the College Scholars program based on their academic record and achievements from their first semester on campus. These students have the opportunity to pursue advanced scholarly work in honors seminars and enriched courses or independent-studies projects. The College Scholars program is open only to Arts and Science students.

College Scholars may achieve the designation "Honors in the College of Arts and Science" on their diplomas by acquiring fifteen "honors points" in the program. The honors points system encourages breadth and depth. Students accomplish these goals by taking honors seminars in several AXLE categories and by doing independent projects (independent studies, enriching courses, departmental honors research, internships, service, and creative projects). A maximum of thirteen points may be earned in honors seminars, and a minimum of two research projects must be completed to earn fifteen points. Students must earn a grade of "B" or better in classes that earn honors points. To remain in good standing in the program, students must maintain a minimum grade point average of 3.000.

Further information on the College Scholars program and honors in the College of Arts and Science may be obtained from Associate Dean Dan Morgan.

Departmental Honors

To encourage individual development and independent study within their field, many departments and interdisciplinary programs of the College of Arts and Science offer honors programs for selected, superior candidates. Students often begin departmental honors work in the junior year, but some projects start in the senior year. To qualify for consideration, students must have (a) attained a minimum grade point average of 3.300 in all work previously taken for credit and in the major, and (b) exhibited to the department(s) and/or interdisciplinary program(s) other evidence of the student's capacity for independent study. Some departments and interdisciplinary programs require higher grade point averages in all work previously taken for credit and/or in the major. Formal admission is by the director of honors study in the Dean's Office of Undergraduate Education after nomination by the department(s) and/or interdisciplinary program(s) concerned.

Requirements to complete departmental honors vary from department to department (see descriptions in the appropriate department sections of this catalog). Candidates are required to demonstrate some degree of originality and maturity in the methods of independent investigation, analysis, and criticism, and skill in the written presentation of independent work. This standard usually requires a senior thesis but may be satisfied, in departments that have gained approval of this procedure, by a series of briefer critical papers.

Departmental honors work culminates in an examination given in the second semester of the senior year. The examination shall be both oral and written except in departments where honors students must take all courses required of standard majors in addition to those required of honors students. These departments have the option of making the examination either oral or both oral and written. The examination shall be conducted by a committee with a majority of examiners who have not participated in the candidate's honors work. Where feasible, examiners from other institutions may be included. The examination shall cover the thesis and specific fields of the independent work and may, at the discretion of the department, include all of the major work. Successful candidates are awarded honors or highest honors in their field, and this designation appears on their diplomas.

Dean's List

The Dean's List recognizes outstanding academic performance in a semester. Students are named to the Dean's List when they earn a grade point average of at least 3.500 while carrying 12 or more graded credit hours, with no temporary or missing grades in any course (credit or non-credit), and no grade of *F*. A student must be in a degree-granting school.

Phi Beta Kappa

The Alpha Chapter of Phi Beta Kappa in the state of Tennessee honors scholarly attainments in the liberal arts and sciences and annually elects seniors and juniors to membership during the spring semester.

Seniors who have completed at least 60 credit hours in the College of Arts and Science and earned a cumulative grade point average of 3.65 or higher are eligible for consideration, as are juniors who have completed at least 70 credit hours at Vanderbilt with a cumulative grade point average of at least 3.90. Juniors must have completed most AXLE requirements by the end of their junior year. For calculating credit hours and judging residence requirements, the chapter treats foreign study programs in the same manner as does the College of Arts and Science.

Attainment of the minimum required grade point average does not guarantee election. Membership in Phi Beta Kappa is based on a demonstration of scholarly achievements, broad cultural interests, and high moral character. The scholarly work must emphasize liberal rather than applied or professional studies. As a guideline, for seniors at least 90 credit hours must qualify as liberal. Grades earned in applied (vocational) or professional course work are

not counted in computing the grade point average. The breadth of a candidate's program, as shown by the number and variety of courses taken outside the major, is also considered.

Phi Beta Kappa has long emphasized the importance of mathematics and foreign language in a liberal education. In keeping with this tradition, the chapter considers only those students who have demonstrated proficiency in these areas beyond the AXLE graduation requirements. Proficiency in reading, writing, and speaking a foreign language is typically demonstrated by passing a course in a language at a level at least one semester beyond the AXLE requirements. Courses must be taken on a graded rather than a P/F basis. The foreign language requirement may be satisfied with College Board SAT Subject, Advanced Placement, International Baccalaureate, or Tennessee Language Center test scores.

Mathematics proficiency may be demonstrated by completing two semesters of calculus or one semester of calculus and one semester of statistics. Courses must be taken on a graded rather than a P/F basis. The mathematics requirement may be satisfied with Advanced Placement, International Baccalaureate, or A-Level exam credit, but not College Board SAT Subject test scores.

In no event may the total number of persons elected from any senior class exceed 10 percent of the class, and from any junior class exceed six persons. Eligible juniors who are not elected are reconsidered for membership in their senior year.

Refer to the chapter website my.vanderbilt.edu/phibetakappa for additional information and detailed eligibility criteria.

Honor Societies for First-Year Students

First-year students who earn a grade point average of 3.500 or better for their first semester are eligible for membership in the Vanderbilt chapters of Phi Eta Sigma and Alpha Lambda Delta.

Other Awards and Prizes

MORRIS H. BERNSTEIN JR. PRIZE IN LATIN DECLAMATION. Established in 1983 by William H. Bernstein (B.A. 1983) in memory of his father (B.A. 1943, M.D. 1946). Awarded after a competition, open to any undergraduate who has studied two semesters of Latin, in which participants deliver from memory Latin passages selected to reflect classical ideals.

FOUNDER'S MEDAL FOR ORATORY. Awarded to the senior who has demonstrated the highest standard in public speaking.

FRENCH GOVERNMENT PRIZES. Awarded for excellence in French studies.

EDWIN S. GARDNER MEMORIAL PRIZE FOR EXCELLENCE IN FRENCH. Awarded to a graduating senior who majored in French.

ALEXANDER HEARD AWARD. Presented annually to the outstanding senior political science major.

RICHARD J. LARSEN AWARD FOR ACHIEVEMENT IN UNDERGRADUATE MATHEMATICS. Established in 2005 to honor

the commitment to undergraduate education of Richard J. Larsen, member of the faculty from 1970 to 2005. Presented each spring to the senior math major judged by the faculty to have excelled in all aspects of undergraduate mathematics.

AVERY LEISERSON AWARD. Presented for the best research paper or essay written by an undergraduate in a political science course.

MERRILL MOORE AWARD. Endowed in 1961 by Mrs. Merrill Moore, Squantum, Massachusetts, in memory of her husband. Presented to a graduating senior or a student entering the junior or senior class, selected by the Department of English on the basis of “literary promise and the psychological or practical usefulness of the award” to the student.

DANA W. NANCE PRIZE FOR EXCELLENCE IN A PREMEDICAL CURRICULUM. Endowed in 1985 by the family and friends of Dana W. Nance (B.A. 1925, M.D. 1929). Awarded annually to a student who has demonstrated the perseverance to succeed in a premedical curriculum and who embodies the attributes of a caring physician.

JUM C. NUNNALLY AWARD. Established in 1987 in memory of this professor of psychology from 1960 to 1982. Presented to a graduating senior in the honors program of the Department of Psychology for the best research project.

DONALD E. PEARSON AWARD. Presented annually to a graduating senior in chemistry adjudged the most distinguished in undergraduate research in chemistry.

PHI BETA KAPPA FRESHMAN SEMINAR AWARD. Awarded annually to students who have done outstanding creative work in freshman seminars.

AWARD FOR OUTSTANDING RESEARCH IN MOLECULAR BIOLOGY. Presented to a senior in molecular biology for outstanding research performed as part of the major program in molecular biology.

OUTSTANDING SENIOR IN CHEMISTRY AWARD. Presented annually to that graduating senior in chemistry who, in the opinion of the faculty of the Department of Chemistry, shows most promise of an outstanding career.

HENRY LEE SWINT PRIZE. Awarded since 1978 for the best essay in history.

STANLEY AND ANN T. TARBELL PRIZE IN ORGANIC CHEMISTRY. Awarded annually to a graduating senior who has excelled in organic chemistry by earning the highest grades in courses or performing outstanding research in organic chemistry.

UNDERWOOD MEMORIAL AWARD. Endowed in 1961 by the late Newton Underwood in memory of his father, Judge Emory Marvin Underwood, long-time member of the Board of Trust. The cash award is given to the most deserving and most promising graduating senior or graduate student in physics.

SUSAN FORD WILTSHIRE PRIZE. Cosponsored by the Gender and Sexuality Studies program and the Women’s Faculty Organization, this award is given annually for the best undergraduate essay that deals with gender issues.

KATHARINE B. WOODWARD PRIZE. Awarded since 1943 and endowed in 1962 by Miss Katharine B. Woodward, Class of 1919, for excellence in Spanish studies.

MARGARET STONEWALL WOOLDRIDGE HAMBLET AWARD. Endowed in 1983 by Clement H. Hamblet in memory of his late wife, who began her art studies at Peabody College. The award is given to a graduating student of outstanding merit in studio art to enable the pursuit of his or her creative development through one year of extensive travel and further studies in studio art.

Academic Regulations in the College of Arts and Science

Honor System

All academic work at Vanderbilt is done under the Honor System. (See the chapter on Life at Vanderbilt.)

Class Attendance

Students are expected to attend all scheduled meetings of classes in which they are enrolled; they have an obligation to contribute to the academic performance of all students by full participation in the work of each class. At the beginning of the semester, instructors explain the policy regarding absences in each of their classes, and thereafter they report to the Dean's Office of Undergraduate Education in the College of Arts and Science the name of any student whose achievement in a course is being adversely affected by excessive absences. In such cases an associate dean, in consultation with the instructor, takes appropriate action, which may include dropping the student from the class; students dropped after the deadline for withdrawal (see Period for Withdrawal) receive the grade *F*. Class attendance may be specified as a factor in determining the final grade in a course, and it cannot fail to influence the grade even when it is not considered explicitly.

The last day before and the first day after official holidays are considered to be the same as any other day on which classes are scheduled. Assignments are made for classes scheduled on these days, and tests may be given in them. Students should take this fact into account in making travel plans.

The faculty of the College of Arts and Science recognizes that occasions arise during the academic year that merit the excused absence of a student from a scheduled class or laboratory during which an examination, quiz, or other graded exercise is given. Examples include participation in sponsored university activities (e.g., debate team, varsity sports), observance of officially designated religious holidays, serious personal problems (e.g., serious illness, death of a member of the student's family), and matters relating to the student's academic training (e.g., graduate or professional school interviews). While determination of the merit of a case is left primarily to the discretion of the individual instructor, conflicts arising from personal travel plans or social obligations do not qualify as excused absences. The Dean's Office of Undergraduate Education does not grant excused absences for students. For more information please visit as.vanderbilt.edu/academics/policies/absences.php.

The primary determination of whether a student's absence from class occurs for a reason that warrants rescheduling a graded exercise for that student is left to the judgment of the individual instructor. A standard of reasonableness should apply in making such judgments.

Except in cases of true emergency, student petitions for making up missed graded exercises must be made prior to the missed class, preferably at the beginning of the semester or at the earliest time thereafter when the need to be absent is known to the student. Faculty members retain discretion in the form and timing of makeup exercises or in devising other strategies for accommodating students.

The faculty of the College of Arts and Science authorizes the Office of the Dean to resolve through arbitration any cases that cannot be directly resolved between students and their instructors.

Classroom Recording Policy

The use of technologies for audio and video recording of lectures and other classroom activities is allowed only with the express permission of the instructor. In cases where recordings are allowed, such content is restricted to personal use only unless permission is expressly granted in writing by the instructor and by other classroom participants, including other students. Personal use is defined as use by an individual student for the purpose of studying or completing course assignments. When students have permission for personal use of recordings, they must still obtain written permission from the instructor to share recordings with others.

For students registered with the Office of Student Access Services and who have been approved for audio and/or video recording of lectures and other classroom activities as a reasonable accommodation, applicable federal law requires instructors to permit those recordings. Such recordings are also limited to personal use, except with permission of the instructor and other students in the class.

Course Registrations

Normal Course Load

Each semester, regular tuition is charged on the basis of a normal course load of 12 to 18 semester hours. No more than 18 or fewer than 12 credit hours may be taken in any one semester without authorization of the Administrative Committee or an associate dean in 350 Buttrick Hall. (There is an extra charge for more than 18 credit hours at the current hourly rate.) First-year students may not take more than 18 credit hours in a semester.

Students permitted to take fewer than 12 credit hours are placed on probation, unless their light load is necessary because of outside employment or illness. During the summer session, there is no minimum course load. Summer loads exceeding 14 credit hours must be authorized by an associate dean in 350 Buttrick Hall.

Credit hours are semester hours; e.g., a three-hour course carries credit of 3 semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements that exceed this definition.

A student must be enrolled in a minimum of 12 credit hours to be classified as a full-time student.

Auditing

Regularly enrolled Arts and Science students who want to audit courses in any of the undergraduate schools of the university must obtain the written consent of the instructor to attend the class but do not register for the course for credit. Forms are available from the Dean's Office of Undergraduate Education in each school. No permanent record is kept of the audit. Regular students may audit one class each semester.

Taking Courses for No-Credit

Students may want to take elsewhere in the university courses that are not creditable toward the bachelor's degree. They may do so on a no-credit basis, attending classes, doing all the work of the course, and receiving a grade that is recorded on the transcript with a notation that it does not count toward the degree.

No-credit courses count in computation of the student's academic load and in computation of tuition, but not in computation of the grade point average. They also do not count toward the attainment of class standing.

Taking Courses for P/F Credit

Students may elect to take a limited number of courses on a Pass/Fail (P/F) basis. To enroll for a course on a Pass/Fail basis, students must have achieved at least sophomore standing, and must not be on academic probation. A minimum 12 graded credit hours is required.

A graduating senior who has permission to take fewer than 12 credit hours on a graded basis may take one course on a P/F basis in addition to the courses required for graduation. If the student does not graduate at the end of that semester, the *P* grade is automatically converted to the grade actually earned.

No more than 18 credit hours graded *P* may be counted toward the degree, and no more than one course per term may be taken P/F.

The P/F option does not apply to courses in the following categories:

1. Courses counted toward AXLE requirements;
2. Courses in the major field(s), other courses that may be counted toward the major(s), or courses required for the major(s);
3. For students with a defined interdisciplinary major, courses that are required for the major or that are eligible to count toward the major;
4. For students with an individually designed interdisciplinary major, courses listed in the student's plan of study;
5. For students planning an optional minor, courses in the minor field or those eligible to count toward an interdisciplinary minor;
6. Courses eligible to count toward the major or minor, regardless of whether the student has already satisfied major or minor requirements;
7. Courses that have been specifically excluded from the P/F option;
8. Courses taken previously.

Students may elect grading on a Pass/Fail basis or change from Pass/Fail to graded status until the deadline date for withdrawing from a course that is published in the Academic Calendar. Pass/Fail rules, requirements, and deadlines are not petitionable.

Those electing the Pass/Fail option must meet all course requirements (e.g. reports, papers, examinations, attendance, etc.) and are graded in the normal way. Instructors are not informed of the names of students enrolled on a Pass/Fail basis. At the end of the semester, a regular grade is submitted for the student enrolled under the P/F option. Any grade of *D–* or above is converted in the Student Records System to a *P,* while an *F* will be recorded if a student enrolled under this option fails the course. The *P* grade is not counted in the grade point average nor used

in the determination of honors. The grade of *F* earned under the Pass/Fail option is included in the calculation of the grade point average.

The grade for a class will be converted from *P* to the recorded letter grade if a student later declares a major or minor toward which that class counts. The recorded letter grade will be included in both the overall and the major or minor grade point average.

Undergraduate Enrollment in Graduate Courses

In the 4-digit course numbering system some courses may enroll undergraduate and graduate students simultaneously. Typically, there is a 3000- or 4000-level course for undergraduates and a matching 5000-level course for graduate students. Undergraduate students may enroll in the 3000- or 4000-level course of these pairs without special approval.

A qualified Vanderbilt University senior undergraduate may enroll in courses approved for graduate credit (those numbered 5000 and higher) and receive credit that, upon the student's admission to the Vanderbilt Graduate School, may be applicable toward a graduate degree. Vanderbilt cannot guarantee that another graduate school will grant credit for such courses. The principles governing this option are as follows:

1. Work taken under this option is limited to those courses approved for graduate credit (those numbered 5000 and higher) and listed as such in the Graduate School catalog, excluding thesis and dissertation research courses and similar individual research and readings courses. Courses approved for professional credit (i.e., many courses in the Divinity School, Law School, School of Medicine, School of Nursing, and Owen Graduate School of Management) may not be taken as part of this option.
2. The student must, at the time of registration, have a 3.00 average in all prior work to be counted toward the bachelor's degree, or a 3.00 average in all prior work to be counted toward the undergraduate major, or a 3.00 average in the preceding two semesters.
3. The total course load, including both graduate and undergraduate courses, must not exceed 15 credit hours in any semester.
4. No undergraduate student may enroll in more than one graduate course in any semester.
5. A registration form for undergraduate Arts and Science students wishing to exercise this option is available in the Dean's Office of Undergraduate Education. The interested student must use this form to obtain the written approval of the following:
    a. the academic adviser,
    b. the instructor of the course,
    c. and the director of graduate studies of the department or program.

Reserving Credit for Graduate School

1. Arts and Science students who are interested in reserving the credit earned in a graduate course (those numbered 5000 and higher) should consult with the Graduate School before attempting to register for graduate courses under this option.
2. The work must be in excess of that required for the bachelor's degree.
3. All of the above criteria apply under this option.
4. Students must declare their intention to reserve this credit on the registration form.
5. Permission for Vanderbilt undergraduates to enroll in graduate courses does not constitute a commitment on the part of any department to accept the student as a graduate student in the future.
6. An undergraduate student exercising this option is treated as a graduate student with regard to class requirements and grading standards.

Independent Study and Directed Study Courses

Independent study and directed study courses are intended primarily for students in their junior and senior years. Students may not take an independent study or directed study course that duplicates a regular course being offered in the same semester. Juniors or seniors who wish to take independent study or directed study courses must use the following procedure:

1. Students may initiate the independent study enrollment process in YES by clicking on the Individual Study link on the student landing page.
2. Students must be registered in the independent study before the end of the change period.

Duplication of Course Content

It is the responsibility of the individual student to avoid duplication in whole or in part of the content of any course counting toward the degree. Such duplication may result in the withdrawal of credit.

Repeated Courses

Most courses offered in the College of Arts and Science may be repeated. If a course was failed the last time it was taken, credit is awarded when the course is repeated with a passing grade. If a course was previously passed, no new credit is earned. If a course previously passed is repeated and failed, credit originally earned for it is lost. In any case all grades earned are shown on the transcript. Under conditions explained below, the most recent grade in a course replaces the previous grade in determining credit, in computing the grade point average, and in verifying the completion of degree requirements and progress toward the degree.

The policy of grade replacement applies when all of the conditions below are met.

1. Failed courses may be repeated until passed; passed courses may be repeated only once.
2. Exactly the same course (same department and course number) is completed. A repeated First-Year Writing Seminar must have the same department and section number but cannot be repeated after completion of the second semester in residence.
3. The course is repeated on a regularly graded basis. This limitation applies even if the course was originally taken on a P/F basis.
4. The course is not one in independent study or directed study.
5. A non-W course is taken as repeat credit for a Writing version of the same course that was previously passed. The student loses credit for the writing requirement.
6. A W course is taken as repeat credit for a non-Writing version of the same course that was previously passed. The student earns credit for the writing requirement.
7. Certain courses (e.g., ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credit hours allowable per semester will be included in the course description.

In some instances, enrollment in a course similar to one already completed but with a different course number will result in the award of no credit for the second course and will have no effect on the grade point average. These are designated in the departmental course listings.

Courses taken in the College of Arts and Science may not be repeated elsewhere for grade replacement.

Students are cautioned that while repeating for grade replacement a course previously passed may improve their cumulative grade point average, it may also lead to a problem in meeting minimum credit hours requirements for class standing because no new credit is earned.

The Registration Process

A period is designated in each semester during which continuing students, after consultation with their advisers, register for work to be taken during the next term. The student’s adviser must release the advising hold in YES before the student can register.

Students are asked to plan their immediate and long-range educational programs with their advisers before registering and to consult their advisers when they make changes in their registration.

Students not meeting specified tuition payment deadlines are not permitted to register. See the chapter on Financial Information for details.

Before registering, students should check their own records carefully with respect to the following items:

1. AXLE requirements;
2. Major requirements;

3. Requirements of any optional minor(s) sought;
4. Course prerequisites.

Period for Withdrawal or Change from P/F Status

After the Change Period, and extending to the deadline published on the Undergraduate Academic Calendar, a student may withdraw from a course with approval from the student's adviser. Under certain conditions, withdrawal may also require approval from an associate dean in 350 Buttrick Hall. During the same period students may change their status from P/F to regularly graded or elect Pass/Fail status in a course.

These changes must be made with a Change of Course form, which is available online and which the student must submit to the Dean's Office of Undergraduate Education in Arts and Science. After the deadline, withdrawal is possible only in the most extraordinary circumstances, such as illness or unusual personal or family problems, and in all cases must be approved by the Administrative Committee. After the withdrawal deadline, change from P/F to regularly graded status is not permitted.

Students who withdraw from a course after the change period receive the grade *W* (withdrawal). This grade is not used in the computation of the grade point average or class rank. A student who defaults in a course without dropping or withdrawing from it receives the grade *F*.

Minimum Graded Credit Hours

A course may not be dropped without authorization of the Administrative Committee or an associate dean if the student is left with a course load of fewer than 12 credit hours on a regularly graded basis.

Mid-Semester Progress Reports

At the end of the seventh week of each semester, instructors assess the progress of all students in their classes and report those whose work at that point is deficient or whose work is being harmed by excessive absences. Grades to be reported are *C–, D+, D, D–, F,* and *I* (for incomplete, meaning that some work due by that point has not been submitted). Instructors may combine with one of these grades or assign separately a notation of excessive absences from a class. Reports of these deficiencies are posted in the Academic Record application in YES. Grades given at mid-semester do not become part of the permanent record but are intended to warn students about performance judged unsatisfactory.

Examinations

Each department establishes procedures for evaluating student performance, and normally the method of evaluation is the responsibility of the course instructor. At the beginning of the semester instructors should clearly state the evaluation procedures, including types of examinations, to be used in their courses. Students should have adequate opportunity during the semester to demonstrate their knowledge of the subject matter and should be given an indication of their progress in the course prior to the deadline for dropping courses. Instructors are cautioned against placing excessive weight on the final examination when determining a student's grade in a course.

Dead Week

No examinations of any type—including quizzes, hour examinations, and portions of final examinations—are allowed during the last week of classes; papers and in-class presentations are permitted during dead week. The Administrative Committee may grant special permission to the instructor in charge of a course to give laboratory examinations during the last regular laboratory period of the last week of classes. The last week of classes is defined as the last seven calendar days preceding the end of classes. If, for example, classes end on Tuesday, then the "dead week" begins the preceding Wednesday and lasts through Tuesday. Students should notify the Dean's Office of Undergraduate Education of any violation.

Final Examinations

The primary and alternate final examination schedules issued each semester allow two hours for a final examination in each course. Each in-class final examination must be given at the time indicated on the primary schedule. The alternate schedule is used only if the instructor decides to give an in-class examination at two times. The final examination period lasts for about a week and a half.

Alternatives to the standard in-class final examination are permitted at the instructor's discretion. Some examples are take-home examinations, oral examinations, and term papers; there need not be a final examination if adequate evaluation procedures have been used during the term. A take-home or oral examination should make approximately the same demand on a student's time as an in-class examination and should be conducted during the final examination period. A take-home examination must be distributed at the last regular class meeting and must be completed by either the primary or the alternate examination date, whichever is later.

All examinations are conducted under the Honor System.

The instructor's record of grades given during a course and any final examination papers not returned to students must be kept on file by the instructor for the first month of the semester following the conclusion of the course. For spring semester and summer session courses, this rule means the first month of the fall semester.

Monitoring these regulations is the responsibility of the departments, under the supervision of the Dean's Office of Undergraduate Education. Variations from the regulations—such as changing the time of an in-class final examination for an entire class—are allowed only on approval of the Administrative Committee.

Comprehensive Examination

Any department or interdisciplinary program may require a comprehensive examination of its major students as a condition of graduation.

Senior Re-examination

A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed prevents the student's graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination. The re-examination must be requested through the Dean's Office of Undergraduate Education, and if approved, it is given immediately after the close of the last semester of the student's senior year. A student who passes the re-examination will receive a *D*– in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course.

Credit by Examination

In certain circumstances, students may be awarded course credit by departmental examination. (This procedure is distinct from the award of credit through the College Board Advanced Placement Tests taken prior to the student's first enrollment.)

Students who wish to earn credit by departmental examination should consult the Dean's Office of Undergraduate Education in Arts and Science concerning procedures. To be eligible, students must be carrying a minimum of 12 credit hours and be in good standing.

Students must obtain the approval of the chair of the department that is to give the examination and the instructor designated by the chair. Students may earn up to 18 hours of credit by any combination of credit through advanced placement examinations and credit by departmental examination. Students may earn up to 8 hours of credit by examination in any one department. Students may attempt to obtain credit by examination no more than twice in one semester, no more than once in one course in one semester, and no more than twice in one course. Students may not repeat a course for grade replacement under the credit by examination procedures. Credits earned by credit by examination may not be counted toward AXLE.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after learning the results of the examination.

Students enrolled for at least 12 credit hours are not charged extra tuition for hours earned through credit by examination, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no-credit courses and courses dropped after the Change Period. Students in this category must pay a $50 fee for the cost of constructing, administering, and grading the examination. Since this cost has already been incurred, students who refuse the credit hours and grade are charged the $50 fee nevertheless.

Full-time students with a tuition load exceeding 18 credit hours and students taking fewer than 12 credit hours pay tuition at the regular rate with no additional fee.

Grades and Credit

Grade Reports

Students have access to their grade reports on the Academic Record in YES. Notifications are sent to students in their last two semesters, showing total credit hours, grade point average, and degree requirements still to be met. Students should examine their Degree Audit carefully and discuss it with their advisers. Any errors should be reported immediately to the Dean’s Office of Undergraduate Education (see also Change of Grade).

Grading System

A: excellent

B: good

C: satisfactory

D: minimum pass work

F: failure

Under certain circumstances the following grades may be awarded:

W: withdrawal

P: (see P/F Course Provision)

M: absent from final examination

I: incomplete in some requirement other than final examination

IP: first semester grade for two-semester Honors sequence

Plus and minus modifiers may be associated with letter grades *A* through *D* as shown in the table below. Grade point averages are calculated using indicated grade point values.

Defined Grades with Corresponding Grade Points Per Credit Hour

A	4.0	C	2.0
A-	3.7	C-	1.7
B+	3.3	D+	1.3
B	3.0	D	1.0
B-	2.7	D	0.7
C+	2.3	F	0.0

Grade Point Average

A student's grade point average is obtained by dividing the quality points earned by the credit hours for which the student has registered, excluding courses taken for no credit, those from which the student has officially withdrawn (see Withdrawal Period under Registration above), and those completed with the grade *P*.

In no case is the grade point average affected by transfer credit. No course at another institution in which a grade below *C*– was received, or which was taken on a Pass/Fail basis, is credited toward the degrees awarded by the College of Arts and Science.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or the default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available:

a. Incomplete (I): To be assigned only if the following conditions apply:
    i. An extenuating circumstance has emerged after the course withdrawal deadline
    ii. The student is up to date on all work prior to the extenuating circumstance
    iii. The student successfully completed at least 60% of the assigned work throughout the semester
    iv. The student requests the incomplete before the end of classes
    v. The student has been attending a significant majority of the classes
b. Missing final exam or final evaluation (M): To be assigned only if the following conditions apply:
    i. The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is recorded.
    ii. The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

F: Failure

The grade *F* indicates failure. All *F*'s are counted in the computation of grade point averages, except when a course is repeated and is subsequently passed. In this case the latest grade is used for computation of the grade point average (but the grade originally earned is not removed from the transcript). A course in which the grade *F* is received must be repeated as a regular course if credit is to be given. It may not be repeated as a course in independent or directed study, under the procedures for credit by examination, or on a P/F basis.

Change of Grade

A grade reported and recorded in the Office of the University Registrar may be changed only upon request of the instructor with the approval of the Administrative Committee. The committee will approve such a change only on

certification that the original report was in error.

Transfer Credit

It is the student's responsibility to provide all of the information required by the Office of the University Registrar to assess the program for which transfer of credit is requested. Work presented for transfer must be from a regionally accredited college and is subject to evaluation in light of the degree requirements of the College of Arts and Science. Credit will not be awarded for independent study, physical education, or dance performance courses.

Work transferred to Vanderbilt from another institution will not carry with it a grade point average. No course in which a grade below *C*– was received, or which was taken on a Pass/Fail basis, will be credited toward a degree offered by the College of Arts and Science. The question of credit in the College of Arts and Science for previous work done at another institution must be settled in advance of the student's first registration.

Transfer students must spend at least four full semesters, including the last two semesters, enrolled in the College of Arts and Science. They must earn at least 60 credit hours and complete at least one writing course in fulfillment of the writing requirement while so enrolled.

Residence Requirement

A minimum of four normal semesters (at least 60 credit hours), including the last two semesters (at least 30 credit hours), must be spent in residence in the College of Arts and Science unless an exception is made by the Administrative Committee. Students transferring from other schools of the university must spend the last year (at least 30 credit hours) in residence in the College of Arts and Science.

Summer or Winter Work at Another Institution

Students enrolled in the College of Arts and Science may receive transfer credit for a maximum of two courses taken during summer or winter at a regionally-accredited institution. To qualify for such credit, the student must be in good academic standing and must obtain prior authorization from the appropriate department by submitting courses through the Transfer Credit Submission application in YES. A detailed course syllabus is required in order for a course to be evaluated. Such courses cannot fulfill AXLE requirements, count as part of the last 30 credit hours in residence, duplicate a course taken previously, or be taken on a Pass/Fail or similar basis. Students cannot transfer credit for summer or winter work from outside of the country of their permanent home address.

Senior-in-Absentia

A student who wishes to earn a baccalaureate degree in the College of Arts and Science in absentia must have (a) completed the AXLE requirements and all major requirements; (b) earned at least 105 credit hours and a grade point average of 2.000 with at least 60 credit hours earned in a minimum of four semesters of residence in the College of Arts and Science; (c) been accepted at a professional or graduate school where, during the first year, the remaining credit hours needed for graduation can be earned; and (d) obtained the approval of the major department and an associate dean of the College of Arts and Science. Students who have completed fewer than 105 credit hours may petition the Administrative Committee for special consideration.

The limitation on credit hours outside the College of Arts and Science applies to all bachelor of arts candidates.

Students in the senior-in-absentia program pay a minimum semester tuition charge to the College of Arts and Science (see Financial Information).

Student Leave of Absence

A student desiring a leave of absence should obtain instructions from the Dean's Office of Undergraduate Education in the College of Arts and Science. All students who have completed one regular (fall/spring) semester at Vanderbilt are eligible, provided they have not been dropped by the university and are not dropped at the end of the semester during which application is made. Students may take a leave no more than twice during their career in the College of Arts and Science.

Leaves are granted for one semester or for a year. Applications should be completed before the end of the fall semester for a leave of absence during the spring semester, and before August 15 for a leave of absence during the fall semester (or for the academic year). If the leave is approved, the student must keep the Office of the University Registrar informed of any change of address while on leave.

A student who takes a medical leave after mid-semester is expected to be on leave for the following regular semester as well. A student who plans to return from medical leave must submit appropriate documentation to the Dean's Office of Undergraduate Education and the Office of Student Care Coordination.

A student in good standing who seeks to transfer to Vanderbilt credit earned elsewhere while on leave of absence must obtain permission in advance from the Office of Undergraduate Education. Requests for leave of absence for purpose of semester study away may be allowed if the semester study-away institution is domestic to the student. Requests for leave of absence plus semester study away are not allowed if the semester study-away institution is international to the student.

Registration information is emailed to students on leave of absence. A student failing to register at the conclusion of the stated leave will be withdrawn from the university and must apply for reinstatement.

Withdrawal from the University

Students proposing to withdraw from the university during a regular term must report to the Dean's Office of Undergraduate Education in the College of Arts and Science to initiate proper clearance procedures. If withdrawal from the university is officially authorized, the student will receive withdrawal grades on the same basis as a student withdrawing from a particular course or courses. (See the section on Period for Withdrawal under Registration above.)

Change of Address

Students are responsible for keeping the university informed of their correct mailing addresses, both school and home. They should notify the university, through the Office of the University Registrar, online or in writing, of any address changes as soon as possible. They are provided an opportunity to review address information at registration. The university will consider notices and other information delivered if mailed to the address on file in the Office of the University Registrar.

Academic Discipline

The College of Arts and Science requires each student to maintain an academic record that will permit graduation according to a specified schedule. Students are considered to fall short of the expected rate of progress when

1. They pass fewer than 12 credit hours in a semester or have a semester grade point average lower than 1.500; or
2. In a summer they take 12 or more credit hours but pass fewer than 12 credit hours or earn a grade point average lower than 1.500; or
3. They fail to achieve sophomore, junior, or senior standing within the time allowed; or
4. They accumulate more than two probations after the freshman year, in which case they will normally be dropped from the university; or
5. As first-semester freshmen they pass fewer than two courses or earn a semester grade point average lower than 1.000, in which case they may be required to take a probationary leave of absence; or
6. As first-semester freshmen they earn fewer than 9 credit hours or a semester grade point average lower than 1.500, in which case they may be offered a choice (see Semester Requirements below).

Any student who falls somewhat short of the prescribed levels of academic achievement is normally placed on probation. Any student who fails by a wide margin to reach these levels or who has been placed on probation more than once is reviewed by the Administrative Committee, and may be dropped from the university without having previously been placed on academic probation. The committee considers each case within the framework of the guidelines outlined below and may take any of several actions, among which are the following:

1. The student may be placed on probation;
2. The student may be advised to take a leave of absence or to withdraw from the university;
3. The student may be required to take a leave of absence;
4. The student may be dropped from the university.

Semester Requirements

Full-time students are expected to earn each semester at least 12 credit hours and a minimum grade point average of 1.500. Students who fall short of these levels are normally placed on probation. Students are removed from probation after earning at least 12 credit hours and a semester grade point average of 1.500 or better, assuming they have fulfilled the requirements for class standing stated below.

First-year students who pass fewer than two regular courses in their first regular semester or who earn a semester grade point average lower than 1.000 have so seriously compromised their academic standing that they may be required to take a probationary leave of absence until the beginning of the following fall semester.

First-year students who earn fewer than 9 credit hours or a grade point average lower than 1.500 in the fall may, at the discretion of the Administrative Committee, choose a probationary leave for the spring and return the next fall with two semesters in which to qualify for sophomore standing.

A student on probationary leave may not earn credit at another institution for transfer to Vanderbilt. In appropriate cases the Administrative Committee may prescribe conditions that must be satisfied before the student returns from a probationary leave. Students who do not choose to return at the end of a probationary leave but want to return later are required to apply for reinstatement.

After their first year, full-time students may not be placed on probation more than twice (continuance on probation for a second semester counts as another probation). If a student’s performance is deficient a third time, the student is dropped from the university.

Students who have been authorized to carry fewer than 12 credit hours because of illness or outside employment may be placed on academic probation if their work is deemed unsatisfactory by the Administrative Committee; they are removed from probation when the committee deems their work satisfactory. If they are not removed from probation after a reasonable period of time, such students are dropped.

The internal record of a student dropped from the university under these regulations shows the notation “Dropped for scholastic deficiency.”

Class Standing

The Administrative Committee determines how many semesters will be allowed for each part-time student to attain sophomore, junior, or senior standing.

The internal record of a student dropped from the university under these regulations shows the notation “Failed to qualify for class standing.”

Sophomore Standing

A student qualifies for sophomore standing upon completion of 24 credit hours of work with a grade point average of at least 1.800, completion of two regular semesters (fall or spring), and completion of the first-year writing requirement: successful completion of English 1100 if required and successful completion of a First-Year Writing Seminar (numbered 1111 in various disciplines). First-year students who fail to qualify for sophomore standing in two semesters are placed on probation and must have the permission of the Administrative Committee to register for a third semester. The third semester must be the summer semester at Vanderbilt. Normally, students who do not qualify for sophomore standing during this third semester are dropped from the university.

Junior Standing

A student qualifies for junior standing upon completion of 54 credit hours of work with a grade point average of 1.900, completion of four regular semesters (fall or spring), and completion of a W course at any level (other than ENGL 1100 or a First-Year Writing Seminar). Sophomores who fail to qualify for junior standing within two semesters after qualifying for sophomore standing are placed on probation and must have the permission of the Administrative Committee to register for another semester. This additional semester must be the summer semester at Vanderbilt. Normally, students who do not qualify for junior standing in this additional semester are dropped from the university.

Senior Standing

A student qualifies for senior standing upon completion of 84 credit hours of work with a grade point average of

2.000 and completion of six regular semesters (fall or spring). Juniors who fail to qualify for senior standing within two semesters after qualifying for junior standing are placed on probation and must have the permission of the Administrative Committee to register for another semester. This additional semester must be the summer semester at Vanderbilt. Normally, students who do not qualify for senior standing in this additional semester are dropped from the university.

Seniors who fail to maintain a minimum grade point average of 2.000 are placed on probation and must have the permission of the Administrative Committee to register for another semester.

Petitions and Appeals

The Administrative Committee of the College of Arts and Science entertains petitions from currently enrolled students for exceptions to academic regulations. Any student subject to action by the Administrative Committee may appeal that action to the committee in writing. Further appeals from decisions of the committee follow standard university policies as described in the *Student Handbook.*

Returning to the College

Students on leave of absence return to the university at the end of the leave. If they do not return at that time and want to return later, they must apply to the Office of the University Registrar for reinstatement. Students who are advised to withdraw from the university determine whether or not to return in consultation with the Dean’s Office of

Undergraduate Education. Students who have been dropped may apply to the Office of the University Registrar for reinstatement; in most cases reinstatement is not granted unless there has been an intervening period of at least a year. The Office of the University Registrar forwards all documents to the Administrative Committee, which considers each case on an individual basis. Reinstatement is competitive, and there is no assurance that it will be granted.

Students reinstated after having been advised to withdraw or after having been dropped are automatically on final probation. If they fail to regain good standing and to maintain it until graduation, they are dropped again with little prospect for reinstatement. Application deadlines for reinstatement are as follows: July 15 for the fall semester, November 15 for the spring semester, and April 1 for the summer session.

College of Arts and Science Programs of Study

African American and Diaspora Studies

American Studies

Anthropology

Arabic

Art

Asian Studies

Biochemistry and Chemical Biology

Biological Sciences

Business Studies

Chemistry

Cinema and Media Arts

Classical and Mediterranean Studies

Climate and Environmental Studies

Communication of Science and Technology

Communication Studies

Earth and Environmental Sciences

Economics

Economics and History

English

European Studies

French and Italian

Gender and Sexuality Studies

German, Russian, and East European Studies

Hebrew

History

History of Art and Architecture

College of Arts and Science Courses

Explanation of Course Numbers and Symbols 1000-level courses are introductory courses primarily taken by freshmen and sophomores.

2000- and higher-level courses are intermediate- or advanced-level courses which typically require some prerequisite. They are primarily intended for sophomores, juniors, and seniors.

Hours are semester hours—e.g., a three-hour course carries credit of three semester hours.

Bracketed figures indicate semester hours credit, e.g., [3].

First-Year Writing Seminars are numbered 1111.

W symbols used in course numbers designate courses in the College of Arts and Science that will meet the AXLE writing requirement.

The AXLE designation in parentheses in each course description indicates which AXLE requirement pertains. For example, (HCA) indicates credit for Humanities and the Creative Arts in AXLE. The designation (No AXLE credit) indicates the course does not satisfy an AXLE degree requirement.

The university reserves the right to change the arrangement or content of courses, to change the texts and other materials used, or to cancel any course on the basis of insufficient enrollment or for any other reason.

It is the responsibility of each student to avoid duplication, in whole or in part, of the content of any courses offered toward the degree. Such duplication may result in withdrawal of credit.

German

Greek

Haitian Creole Language

Hebrew

Hindi Urdu Language Instruction

History

History of Art

Honors

Humanities

Interdisciplinary Studies

Italian

Japanese

Jewish Studies

K'iche' - Mayan Language

Korean

Latin

Latin American Studies

Latino and Latina Studies

Malagasy

Mathematics

Medicine, Health, and Society

Neuroscience

Philosophy

Physics

Political Science

Portuguese

Psychology (AS)

Public Policy Studies

Religious Studies

Robert Penn Warren Center

Russian

Sanskrit

Sociology

Spanish

Theatre

Tibetan Language

Blair School of Music

Music at Vanderbilt

Facilities

The Blair Concert Series

Blair Academy at Vanderbilt

The Blair School of Music focuses on the personal and professional education of highly talented young musicians who demonstrate an exceptional capacity and motivation to shape our increasingly diverse and complex global century—through music, with music, and in music.

Our unique “Blair Experience” builds on the very foundation of methods, repertories, and ensembles shared by the world's most competitive schools of music and conservatories but goes well beyond that, immersing students in the transformative spaces of a world-class research university committed to inclusive excellence with distinction in areas ranging from theology to science, arts to engineering, humanities to business, and education to law. Graduates of the Blair School are recognized as superior artists and scholars distinguished by their global mindsets, broad interdisciplinary competencies, and unyielding commitments to advocacy, entrepreneurship, and education.

The Blair School has been an integral part of Nashville’s musical environment since its founding in 1964 by the Justin and Valere Potter Foundation through a bequest of Valere Blair Potter. In 1981 the school was merged with Vanderbilt following the university’s decision to develop an excellent program in music. Studies leading to the professional bachelor of music in performance were initiated in 1986.

The Bachelor of Music degree program includes majors in performance, composition, jazz studies, and integrated studies. The performance major is available in any orchestral instrument, piano, saxophone, euphonium, and voice. The major in composition emphasizes analytical skills as well as the development of students’ creativity. The jazz studies major offers a focus on American and non-Western music traditions while also developing the core fundamentals of Western music common to all Blair majors. The integrated studies major combines the study of composition or a performance area with an additional concentration in music and forms the basis for a five-year program in teacher education offered cooperatively with Peabody College. In the Bachelor of Musical Arts degree program, composers and performers complete an in-depth music study in addition to a field outside of music.

A non-professional 31-hour liberal arts music major makes it possible for students outside the Blair School to choose music as a second major. Students in other schools and colleges of the university also may pursue a minor in music, music composition, musicology/ethnomusicology, or music performance. And Blair offers a remarkable variety of electives for students who wish to enrich their studies with credit in music courses, ensembles, or performance instruction, or to select music as an extracurricular activity.

Blair School of Music is home to internationally known faculty soloists and ensembles, and Blair’s performers, composers, ethnomusicologists, and musicologists are among the most respected in their fields. Members of the faculty ensembles provide private performance instruction and coach chamber music ensembles and performance classes. The faculty's dedication to teaching and a low student/faculty ratio provide students the personal attention

that fosters maximum musical growth and understanding. The school is committed to its goal of developing students who are among the most articulate, culturally aware, and artistically sensitive of any graduates in the country.

Facilities

The Blair building incorporates innovative developments in acoustical design and engineering. It contains teaching studios and faculty offices, classrooms, rehearsal halls, practice rooms, library, administrative offices, technology and keyboard labs, and concert venues. The 272-seat Steve and Judy Turner Recital Hall is the locus for student recitals and concerts and master classes by faculty members and visiting artists held on a regular basis. It also houses the Dobson Organ Opus 92 (2014), designed in the tradition of eighteenth-century eastern German organs not unlike those Bach knew, with additions and accommodations for twenty-first century use. Opened in spring 2002, the 609-seat Ingram Hall garnered immediate acclaim for its superb acoustics, its visual beauty, and its enhancement of the school's ability to host and produce orchestra, opera, and other major concert events.

The Anne Potter Wilson Music Library is a division of the Jean and Alexander Heard Libraries. The collection, begun in 1947, was moved from Peabody College to its new and permanent home at Blair in the summer of 1985. Named to honor Anne Potter Wilson by the Vanderbilt Board of Trust in 1987, the 12,000-square-foot library holds more than 116,000 books, scores, sound and video recordings, and subscriptions to journals and online music databases. It is equipped with a seminar room, listening and viewing stations, computer workstations, and study facilities. A variety of equipment is available for check out including laptops, microphones, phone chargers, midi keyboards, headphones, and umbrellas. Music librarians and staff are available to assist users with music research and finding resources for performance, study, or instruction.

The Blair Concert Series

The Blair Concert Series offers a broad array of music performances to the university community and the region. National and international artists and ensembles, the Blair faculty, including resident ensembles and soloists, and student ensembles and performers are all featured. All student recitals are open to the public. More than 350 concerts are presented at the school each year, and most are free of charge, as a gift to the community.

A milestone in the Blair School's history was "The Blair Commissions: Music for the 21st Century," a project funded by the James Stephen Turner Family Charitable Foundation, which has commissioned several important works by renowned composers from 2005 through 2019. These include works by Susan Botti and Peter Schickele and four major works by Michael Hersch. Each composition received its premiere in Nashville, and all the works were then either recorded or performed in New York. The project has served two intertwined missions: to promote the composition of outstanding works by the world's leading composers and to invite attention to the excellent ensembles and faculty performers of Vanderbilt University.

Composers-in-residence who have visited the Blair School include Robert Beaser, William Bolcom, Susan Botti, George Crumb, Michael Daugherty, Lukas Foss, Gabriela Lena Frank, John Harbison, Michael Hersch, Karel Husa, Steven Mackey, Donald Martino, Cindy McTee, Jessie Montgomery, Kevin Puts, Christopher Rouse, Adam Schoenberg, Joseph Schwantner, Frank Ticheli, Michael Torke, and Joan Tower.

Blair Academy at Vanderbilt

Individual, group, class, and ensemble instruction for precollege and adult students (defined as students above high school age not receiving university credit) is offered through the Blair Academy at Vanderbilt. Course offerings are available at blair.vanderbilt.edu/blair-academy/.

Classes for Students in Other Vanderbilt Schools and Colleges

Ensembles

The Blair School of Music welcomes all Vanderbilt students into its classes and studios. A large number of courses are designed specifically for non-majors. Many classes are held in Sarratt Cinema, Alumni Hall, and other central campus locations. Non-majors may also participate in any and all music major courses for which they are qualified.

A wide variety of music courses fulfill liberal arts core requirements for undergraduates in the College of Arts and Science, the School of Engineering, and Peabody College. Students in the School of Engineering can count up to 12 hours of MUSE, MUSO, COMP, MREP, MUTH, and performance courses, except MUSO 1001, towards liberal arts core requirements. How students in the College of Arts and Science and Peabody College may use music courses varies according to their specific degree and program requirements.

Ensembles

The Blair School of Music sponsors several major performing ensembles, including the Vanderbilt University Singers, Vanderbilt Chorale, Orchestra, Wind Symphony, Opera Theatre, and Blair Big Band. Other non-western and vernacular ensembles, such as the African Performing Ensemble and the Steel Drum/Pan Ensemble, are also available for credit. A large number of smaller ensembles and chamber music groups also exist, offering students a wide variety of experiences.

Auditions. Auditions for the major performing ensembles are held at the beginning of each semester. Audition information can be found on the Blair School of Music website. Assignment is at the discretion of the director. Students need the approval of the appropriate faculty chamber music coordinator before enrolling in chamber music; if participation has not been discussed with the coach, students may register tentatively for the “to be assigned” section of chamber music. Openings in ensemble are not guaranteed.

Credit. Students may register for course credit. Audit status or registration for zero hours may be possible with permission of the director and the associate dean of the student's school or college.

Performance

Performance instruction in individual or group settings is available for university credit for an additional fee. Private instruction is offered in all orchestral instruments and in piano, organ, guitar, saxophone, euphonium, steel

drum/pan, and voice. Credit is flexible, but beginning students may register for only 1 credit hour. Students can earn either 1 or 2 credit hours each semester, depending on lesson length and number of required practice hours. Students in the School of Engineering can count up to 12 hours of performance courses towards liberal arts core requirements. For others, performance is elective credit. Group instruction is offered in piano, guitar, and percussion; groups have maximum of six students and earn 1 credit hour.

Group Performance Instruction: Non-Major

Group instruction is designed for beginning students with emphasis on basic technique, rhythm, tone, and musical interpretation. Groups are limited to six students.

Registration. New students must interview with the appropriate faculty member before finalizing registration. Instructions are given in the online registration system.

Fees. Music fees are in addition to tuition charges and are not refundable after the change period. The cost for group instruction is $1,013 per semester for one 50-minute class weekly. (Fees, set annually by the Board of Trust, are subject to review and change without further notice.)

Individual Performance Instruction

Individual instruction is focused on the art and practice of an instrument or voice, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Blair offers collegiate-level performance instruction for non-majors at the 1100 level. 2100-, 2200-, 4100- and 4200-level courses are open only to B.Mus. and B.Mus.Arts students.

Registration. New students must interview with the appropriate faculty member before finalizing registration.

Information is available in YES. Enrollments are limited.

Credit. University students enrolled in individual instruction may earn 1 or 2 credit hours depending on lesson length and practice commitment.

- 30-minute or 45-minute lessons with 5 hours minimum weekly practice earn 1 credit
- 60-minute lessons with 10 hours minimum weekly practice earn 2 credit
- Beginners may not register for more than 1 hour of credit

Fees. Music fees are charged in addition to regular tuition, and are not refundable after the change period.

Students receiving need-based financial aid may request that music fees be considered in their financial aid package. Students with a declared second major or minor in music will be charged approximately one-half the music performance instruction fee. For instrument courses numbered 1100, fees per semester are as follows:

	Elective Credit/Non-Blair Students	2nd majors and minors receive 50% discount
One 30-minute lesson weekly	$1,311	
One 45-minute lesson weekly	$1,838	
One 60-minute lesson weekly	$2,304	

Fees, set annually by the Board of Trust, are subject to review and change without further notice.

Music Minors

Students may elect one of four minors: music, music composition, musicology/ethnomusicology, or music performance. Formal admission to the music minor or performance minor is contingent upon a performance audition that meets departmental standards for the intermediate or advanced level of study. Following interviews with the appropriate department, students plan their studies with Blair advisers. Contact information and declaration paperwork are available online: blair.vanderbilt.edu. Students must complete all requirements for the music minors with standard grading basis (that is, not Pass/Fail).

Music Minor. 24 or 25 hours.

Music Theory. 6 or 7 hours.

MUTH 1200 and 1210 (6 hours); or MUTH 2100/2110 and MUTH 2200/2220 (7 hours)

Musicology/Ethnomusicology. 12 hours.

MUSL 2200W or 1200

One course chosen from: MUTH 3890, MUSL 1111-02 (Shakespeare and Music), 1210, 1220, 1240, 3220-3240, and 3890

One course chosen from: MUSL 1100, 1105, 1111-01 (Music and Global Health), MUSL 1111-03 (Music and Modernism), MUSL 1111-04 (Music, Identity, and Diversity), 2110, 2150, 2610, 3220-3240, and 3890

One course chosen from: MUTH 3890 or any MUSL course

Performance. 4 hours.

Individual performance instruction in a single instrument for at least 4 semesters (any orchestral instrument, piano, organ, guitar, saxophone, euphonium, voice, or JAZZ 1100).

Students must meet minimum performance standards for admission to the program, earning a total of 4 hours. Declaration forms are available at blair.vanderbilt.edu/academics.

Ensemble. 2 hours (2 different semesters).

Participation for two semesters in an appropriate performing ensemble, after consultation with the minor adviser.

Musicology/Ethnomusicology Minor. 18 or 19 hours.

Music Theory. 6 or 7 hours.

MUTH 1200 and 1210; or MUTH 2100/2110 and MUTH 2200/2220

Musicology/Ethnomusicology. 12 hours.

MUSL 2100, MUSL 2200W*, MUSL 3100, and one course from MUSL 3220-3240 or 3890.

*Students who have completed MUSL 1200 must substitute another course for MUSL 2200W, selected from MUSL 1100, 1105, 1210, 1220, 1240, 1300, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 2110, 2150, 2320, 2600, 2610, 3220-3240, 3160, or 3890.

Music Composition Minor. 26 hours.

Music Theory. 13 hours.

MUTH 2100, 2200, 2300, 2400; MUTH 2110, 2220

Musicology/Ethnomusicology. 6 hours.

MUSL 1200 or 2200W, 3100

Composition. 7 hours.

COMP 1100; COMP 1150 (4 semesters)

Formal admission into the music composition minor requires departmental approval; successful completion of COMP 1100 (Composition Workshop) is a pre-requisite to applying. Upon completion of COMP 1100, applicants may submit to the Composition Chair a portfolio of three completed works, with scores and recordings (MIDI is acceptable). The entire composition faculty will then evaluate the portfolio and make a final decision.

Music Performance Minor. 25 or 26 hours.

Music Theory. 6 or 7 hours.

MUTH 1200 and 1210; or MUTH 2100/2110 and MUTH 2200/2220

Musicology/Ethnomusicology. 6 hours.

MUSL 2200W or 1200

One course chosen from MUSL 3220-3240 or 3890 (Jazz students: MUSL 1620)

Performance. 8–11 hours.

Individual instruction in a single instrument for at least 6 semesters (any orchestral instrument, piano, organ, guitar, saxophone, euphonium, or voice.) Jazz students earn 8 hours in 4 semesters of JAZZ 1100.

Students must meet minimum performance standards for admission to the program, earning a total of 8–11 hours. Repertoire information and declaration forms are available at blair.vanderbilt.edu/academics.

Ensemble. *2 hours (two different semesters).*

Participation for two semesters in an appropriate performing ensemble, as assigned following audition. String, woodwind, brass, percussion, and harp students must audition for MUSE 1010, Instrumental Ensemble.

Students who are not placed in MUSE 1010 may participate in another appropriate ensemble, contingent upon permission of the ensemble instructor and the studio instructor. Guitar and voice students must audition for MUSE 1020, Vanderbilt University Singers. Keyboard students must participate as a pianist for one semester in MUSE 2300, 2310, 2320, 2330, 2210, 2230, or 2270; or in 1010, 1020, 1030, or 2120, contingent upon permission of the ensemble instructor and the piano instructor. Jazz students may choose MUSE 1310, 1320, or 1330.

Elective for Jazz students. *2-3 hours*. One or two courses chosen from JAZZ 1150, 1210, 1220, 1230; MUSO 1340, 1342; MUTH 3120; MUSL 1105, 1600, 1630, 2110, 2600, 2610, 2620, 3160.

Music as a Second Major

Blair offers a non-professional liberal arts major in music that requires a minimum of 31 hours. Designed jointly by Blair and the College of Arts and Science, it is also available to Peabody and Engineering students as a second major. Formal admission to the second major is contingent upon a performance audition that meets departmental standards for the intermediate or advanced level of study. Following interviews with the appropriate performance department, students plan their studies with Blair adviser Professor Russell Platt, coordinator of the program. Contact information and declaration paperwork are available online: blair.vanderbilt.edu. Students must complete all requirements for the music as a second major with standard grading basis (that is, not Pass/Fail).

Music Major (Second Major). 31 hours.

Music Theory. 12 hours.

MUTH 2100/2110, MUTH 2200/2220, MUTH 2300/2330, and MUTH 2400.

Musicology/Ethnomusicology. 9 hours.

MUSL 2100, 2200W*, 3100.

*Students who have completed MUSL 1200 must take an additional course instead of MUSL 2200W, selected from MUSL 3220-3240.

Individual Performance Instruction. 6 hours.

Six semesters of study in any orchestral instrument, piano, organ, guitar, saxophone, euphonium, or voice. Students must meet minimum performance standards for admission to the program, earning a total of 6 hours. Repertoire information and declaration forms are available in the Blair office and online at blair.vanderbilt.edu/academics.

Ensemble. 2 hours (two different semesters).

Participation for two semesters in an appropriate performing ensemble, as assigned following audition. String, woodwind, brass, percussion, and harp students must audition for MUSE 1010, Instrumental Ensemble.

Students who are not placed in MUSE 1010 may participate in another appropriate ensemble, contingent upon permission of the ensemble instructor and the studio instructor. Guitar and voice students must audition for MUSE 1020, Vanderbilt University Singers. Keyboard students must participate as a pianist for one semester in MUSE 2300, 2310, 2320, 2330, 2210, 2230, or 2270; or in 1010, 1020, 1030, or 2120, contingent upon

permission of the ensemble instructor and the piano instructor.

Elective. 2–3 hours.

One course in music theory, musicology/ethnomusicology, or conducting, chosen from MUTH 2400, 3130, 3110, 3210, 3200, 3120, 3140, 3160, 3890; any MUSL; MCON 3000.

Blair School of Music Administration and Faculty

LORENZO CANDELARIA, Ph.D., Dean, Blair School of Music

MELISSA K. ROSE, D.M.A., Senior Associate Dean for Academic Affairs

SETH SOLOWAY, M.F.A., Associate Dean for Presenting and External Relations

MICHAEL SLAYTON, D.M.A., Associate Dean for Faculty Affairs

VIRGINIA PAYNE, B.A., Associate Dean for Blair Development and Alumni Relations

MOLLY JEWELL, B.M., Director, Admissions

HEIDI BASGALL FAVORITE, Chief of Staff

KATHRYN DUDLEY, B.F.A., Chief Business Officer

RACHEL HOBBS, B.A., Office of Academic Services

JOHN SEVIER, B.A., Director of Technical Operations

JARED WONDERLY, M.S.A., Facilities Manager

Music Library

HOLLING SMITH-BORNE, M.L.S., Director

SARA J. MANUS, M.L.S., Music Librarian for Public Services

JACOB SCHAUB, M.M., M.L.S., Music Librarian/Cataloging

MICHAEL JONES, B.A., Circulation Coordinator

ROBERT RICH, B.M., M.M., Reference Assistant

Area Coordinators

JEREMY WILSON, Brass and Percussion

CONNIE HEARD, Strings, Guitar, and Harp

MOLLY BARTH, Woodwinds

TYLER NELSON, Voice

KAREN ANN KRIEGER and HEATHER CONNER, Keyboard

THOMAS VERRIER, Ensembles

JOY CALICO, Musicology/Ethnomusicology

MICHAEL SLAYTON, Composition/Theory

Faculty Coordinators and Program Directors

MARY BIDDLECOMBE, Director, Blair Academy

TUCKER BIDDLECOMBE, Music Education Program

JOSHUA MCGUIRE, Aural Skills, Musicians' Wellness, Music Technology

RYAN MIDDAGH, Director, Jazz Studies

BRIAN UTLEY, Chamber Music, Immersion

RUSSELL PLATT and JAMA REAGAN, Music Minors

RUSSELL PLATT, Music as a Second Major

Committees

For a list of committees, please visit blair.vanderbilt.edu.

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

The Degree Programs

Bachelor of Music

The Bachelor of Music degree program includes five different majors: performance, composition, jazz studies, integrated studies, and integrated studies/teacher education. The performance major is available in any orchestral instrument, piano, saxophone, euphonium, and voice. The composition major emphasizes both the creation and analysis of music. The major in jazz studies combines performance, composition, improvisation, musicianship, analysis, music technology, entrepreneurship, and an emphasis on global music. Optional concentrations are available in collaborative arts, composition, conducting, ethnomusicology, jazz, multiple woodwinds, music and the mind, musicology, pedagogy, or music theory. The integrated studies major provides a solid foundation in the art of music and includes a required concentration in collaborative arts, composition, conducting, ethnomusicology, jazz, multiple woodwinds, musicology, pedagogy, music theory, or an individually designed area.

The integrated studies/teacher education program, a five-year curriculum jointly developed with Peabody College, is for students interested in earning the master of education degree and teacher licensure in addition to the bachelor of music degree. Students in this curriculum can earn the B.Mus. degree in four years and the M.Ed. and teacher licensure for instrumental/general or vocal/general music in the fifth year (June–May).

All bachelor of music degree candidates complete a program designed to ensure an intense, yet broadly-based, understanding of the discipline of music, focused on the skills and knowledge students will need to succeed as informed musicians of the twenty-first century. Each student must complete 126 credit hours, including 80 hours in music. The music core (44 credit hours minimum) includes music theory, aural skills, keyboard harmony, ethnomusicology/musicology, conducting, technology for musicians, pedagogy, and ensemble. Each major has additional specific requirements, including performance instruction and other music courses (to fulfill 80 hours).

Liberal arts core requirements (minimum of 30 hours) include English, the humanities, courses chosen from history or social science, mathematics or natural science, and academic electives. Students may take free electives to total 126 hours. Sample curriculum plans are in the *Blair Student Handbook* at blair.vanderbilt.edu/academics.

Bachelor of Music Degree Requirements

Requirements by Major Area

Brass Performance

Composition

Harp Performance

Integrated Studies

Integrated Studies/Teacher Education Instrumental/General

Integrated Studies/Teacher Education Vocal/General

Jazz Studies

Percussion Performance

Piano Performance

String Performance

Voice Performance

Woodwind Performance

BRASS PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2210 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

TRPT, HORN, TROM, EUPH, or TUBA 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. TRPT, HORN, TROM, or TUBA 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MPED 3142, MREP 2110

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

COMPOSITION

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (every semester in residence)

Eight semesters selected with the adviser’s approval. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 6 hours, 6 semesters

3 semesters in any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice (1100 level); 2 semesters chosen from any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice or MUED 1010-1040; 1 semester chosen from any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, voice (1100 level), or JAZZ 1100.

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

COMPOSITION. COMP 2301-2304, 4301-4304

Students rotate instructors as assigned for COMP 2301-2304 to gain experience with 4 different members of the department. Students may select one or more instructors of choice for COMP 4301-4304.

OTHER MUSIC. COMP 1000 (every semester in residence); MUTH 3110, MUTH 3210 or 3220, MUTH 3230, COMP 3978, 4970

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. Must include one year of a foreign language, normally French, German, or Italian. Another language appropriate to the student's musical pursuits may be chosen with approval of composition/ theory department. Two (2) courses chosen from: 2000-level or higher art history, 2000- level or higher English, 2000-level or higher philosophy; a total of 33 hours, rather than 30, in liberal arts (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

HARP PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 1130 or 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2210 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

HARP 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. HARP 1000 (every semester in residence), MUSO 3970, 4970

OTHER MUSIC. MREP 2130, MPED 3128

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

INTEGRATED STUDIES

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8-10 hours (every semester in residence)

Auditions for major ensembles are required each semester until requirements are fulfilled. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

Strings, woodwinds, brass, harp, percussion—(10 hours minimum) Eight semesters MUSE 1010 (including four semesters of MUSE 1130, 1140, 2220, 2210, 2230, or 2240, ½ credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career. Double bass majors may choose MUSE 2270 instead of 2210, 2220, or 2240. MUSE 2280 may substitute for one required semester of MUSE 2210, 2220, 2230, or 2240 after completing two semesters of MUSE 2210, 2220, 2230, or 2240.

Piano—(8 hours) MUSE 2300 (one semester), 2310 (one semester), 2320 (one semester), conducted ensemble 1010, 1020, 1030, 2120, or other approved conducted choir (one semester), and choice of 1010, 1020, 1030, 1310, 2120, 2210, 2230, 2270, 2280, 2310, 2320, or 2330 (four semesters). Participation in 1010 or 1030 is contingent upon approval of ensemble conductor and piano instructor.

Voice—(8 hours) Eight semesters MUSE 1020 or 2120 as assigned (or 2330 if demonstrated schedule conflict exists); juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120.

Composition—(8 hours) Eight semesters, selected with adviser's approval

INDIVIDUAL PERFORMANCE or COMPOSITION (for composition students) INSTRUCTION. 2100 and 4100 level, 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

REQUIRED CONCENTRATION IN MUSIC. 18-20 hours.

PERFORMANCE. Performance class (or composition studio class for composers) every semester in residence

(BASS 1000, BSSN 1000, CLAR 1000, CLLO 1000, COMP 1000, FLUT 1000, HARP 1000, HORN 1000, OBOE 1000, PERC 1000, PIAN 1000, SAX 1000, TROM 1000, TRPT 1000, TUBA 1000, VLA 1000, VLN 1000, VOIC 1000)

OTHER MUSIC. 4 hours. MUSO 1201, 1400, 1410, 1420 (required for voice only); 4 hours of 1100-level performance instruction or MUED 1010- 1040 and 3 hours MUTH 3110 (required for composition only); MUSO 1130 (required for percussion only)

PEDAGOGY. 2 hours. MPED in the area of individual performance or COMP 1000 for composition.

MUSIC ELECTIVES. To complete a minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

INTEGRATED STUDIES/TEACHER EDUCATION, INSTRUMENTAL/GENERAL

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 9 hours minimum (ensemble enrollment required every semester and every module in residence).

Six semesters conducted ensemble (chosen from MUSE 1010, 1020, or 2120) and two semesters small ensemble (recommended: MUSE 1030, 1200, 1230, 1232, 1320, 1330, 1340, 2210, 2270, 2280, 2300, 2320 and 2330) are required. Instrumental ensemble (MUSE 1010) and co-requisite chamber music (MUSE 2210) are required for instrumentalists both semesters of the first year. Instrumentalists must enroll in at least one semester of MUSE 1020 or 2120 and have experience in orchestra, wind ensemble, jazz ensemble (as appropriate), choir and chamber music. Pianists must be accepted in MUSE 1010, 1020, or 2120 by the beginning of the second semester. Assignment to ensembles is at the discretion of the directors. During study abroad, a student may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE or COMPOSITION INSTRUCTION. 2100 and 4100 level, 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

COMPOSITION/THEORY. MUTH 3110

PERFORMANCE. Performance class (or composition studio class for composers) on primary instrument every

semester. Secondary instrument(s) two semesters; Intro to Guitar GTR 1010. Senior Recital MUSO 4970. Composition majors only: Performance instruction in an instrument or voice, 8 semesters [8 hours]; composition majors must meet the performance department standards for instruction at the 2100 level and participation in required ensembles.

OTHER MUSIC. Instrumental Conducting MCON 3010.

Note: Conducting study must include two different professors.

MUSO 1130 (Percussion majors only)

PEDAGOGY. 2 hours. MPED in the area of individual performance or COMP 1000 for composition

TEACHING. Class Instruments MUED 1010, 1020, 1030, 1040; Methods and Materials MUED 2010, 3010; Experiential Instruction in Music MUED 3880, 3881, 3882; One MUED seminar of choice MUED 2120-2150; Practica in Music Teaching MUED 3870, 3871, 3872.

LIBERAL ARTS. 30 hours

English/Writing: 6 hours, including MUSL 2200W and choice of AP/IB English credit, any ENGL, or any writing course (any W in the English language, any 1111, or ENGL 1100).

Humanities: 9 hours, including MUSL 2100 and 6 hours in humanities.

History and Social Science: 3 hours

Mathematics: 3 hours math, chosen from statistics (PSY-PC 2110) or calculus (MATH 1010, 1011, 1100, 1200, 1201, 1300, 1301).

Academic Electives: 9 hours, including EDUC 1220 and SPED 1210, which must be completed before fall of the junior year.

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

INTEGRATED STUDIES/TEACHER EDUCATION, VOCAL/GENERAL

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (ensemble enrollment required every semester and every module in residence).

6 semesters large ensemble (chosen from MUSE 1010, 1020, or 2120) and 2 semesters small ensemble (recommended: MUSE 1030, 1200, 1232, 1320, 1330, 1340, 2210, 2270, 2280, 2300, 2320 and 2330) are required. Juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE or COMPOSITION INSTRUCTION. 2100 and 4100 level, 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. Performance class on primary instrument every semester. PIAN 1100 one semester (or VOIC 1100 for non-voice majors). African Performing Ensemble MUSE 1230 one semester. Intro to Guitar GTR 1010. Senior Recital MUSO 4970. Composition majors only: Performance instruction in an instrument or voice, 8 semesters [8 hours]; composition majors must meet the performance department standards for instruction at the 2100 level and participation in required ensembles.

OTHER MUSIC. MCON 3020 Choral Conducting. MUSO 1400 Diction for Singers: English and Italian; MUSO 1410 Diction for Singers: German; MUSO 1420 Diction for Singers: French; it is recommended that MUSO 1400, MUSO 1410 and MUSO 1420 be taken in sequence in the first three semesters). MUSO 1130 (percussion majors only). MUSO 1201 (voice majors only).

PEDAGOGY. 2 hours. MPED in the area of individual performance or COMP 1000 for composition.

TEACHING. Methods and Materials MUED 2010, 3020; Choral Literature and Arranging MUED 2110; Experiential Instruction in Music MUED 3880, 3881, 3882; Piano Skills MUED 1080 (or VOIC 1100 for non-voice majors); One MUED seminar of choice MUED 2120-2150; Practica in Music Teaching MUED 3870, 3871, 3872.

LIBERAL ARTS. 30 hours

English/Writing: 6 hours, including MUSL 2200W and choice of AP/IB English credit, any ENGL, or any writing course (any W in the English language, any 1111, or ENGL 1100).

Humanities: 9 hours, including MUSL 2100 and 6 hours in humanities.

History and Social Science: 3 hours

Mathematics: 3 hours math, chosen from statistics (PSY-PC 2110) or calculus (MATH 1010, 1011, 1100, 1200, 1201, 1300, 1301)

Academic Electives: 9 hours, specifically EDUC 1220 and SPED 1210, which must be completed before fall of the

junior year.

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

JAZZ STUDIES

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum; every semester in residence

MUSE 1310, 1320, or 1330, six semesters, 1 hour each; MUSE 1200, 1210, 1220, 1230, 1310, 1330, 1320, 1340, four semesters, 1 hour each. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 16 hours, 8 semesters (every semester in residence)

JAZZ 2100; 4100 (Voice students must also enroll in VOIC 1100 (1 hour) in each of the first two semesters in residence

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

JAZZ STUDIES. 19 hours

MUSL 1630; 3238; MUTH 3120; JAZZ 1150, 1210, 1220, 1230; Six hours chosen from MUSL in Jazz and Global Music, MENT or MUSO 1342-1348

OTHER MUSIC. JAZZ 1000 (every semester in residence), MUSO 4970, MUED 2140 (pedagogy)

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

PERCUSSION PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 1140, 2220, or 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2110 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

PERC 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. PERC 1000 (every semester in residence), MUSO 3970, 4970

OTHER MUSIC. MUSO 1130, MREP 2120 or 2121, MPED 3144

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

PIANO PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 2133 and 2134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (every semester in residence)

MUSE 2300 (one semester), 2310 (one semester), 2320 (one semester), conducted ensemble 1010, 1020, 1030, 2120 (one semester), and choice of 1010, 1020, 1030, 1310, 2120, 2210, 2230, 2310, 2320, 2330, 2270, or 2280 (four semesters). Participation in 1010 or 1030 is contingent upon approval of ensemble conductor and piano instructor. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

PIAN 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. PIAN 1000 (every semester in residence), MUSO 3970, 4970

OTHER MUSIC. MREP 3310, 3311, MPED 3110

LIBERAL ARTS CORE. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

STRING PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2300, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 2210, 2230, or 2240 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). Double bass majors may choose MUSE 2270. MUSE 2280 may substitute for one required semester of MUSE 2210, 2230, or 2240 after completing two semesters of MUSE 2210, 2230, or 2240. Double bass majors may substitute MUSE 2280 for one required semester of MUSE 2210, 2230, or 2270 after completing two semesters of MUSE 2210, 2230, or 2270. All students except double bass majors must have experience in string quartet (MUSE 2240). Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

VLN, VLA, CLLO, or BASS 2200, 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. VLN, VLA, CLLO, or BASS 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MREP 2130. MPED 3120, 3121, 3125, 3127, or 3129

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

VOICE PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (every semester in residence)

Eight semesters MUSE 1020 or 2120 as assigned (or 2330 if demonstrated schedule conflict exists); juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 28 hours, 8 semesters (every semester in residence)

VOIC 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. PIAN 1100 (two semesters); VOIC 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MUSO 1201, 1400, 1410, 1420, MREP 3330, MPED 3130

LIBERAL ARTS. 30 hours, including 6 hours (two semesters) chosen from French, German (GER 1105 is strongly recommended), and Italian (see full requirements under Humanities below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

WOODWIND PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2210 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

FLUT, OBOE, CLAR, BSSN, SAX 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. FLUT, OBOE, CLAR, BSSN, SAX 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MREP 2140 (flute, oboe, clarinet, and bassoon) *or* MREP 2141 (saxophone); MPED 3140 (section appropriate for major instrument)

LIBERAL ARTS CORE. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

Bachelor of Musical Arts

The bachelor of musical arts degree gives excellent performers and composers the flexibility to combine in-depth music study with a second focus in a field outside of music. The degree, which is available in any orchestral instrument, piano, saxophone, euphonium, voice, jazz studies, and composition, includes 63 credit hours in music; a specific field outside of music or an individually-designed area of interdisciplinary studies (minimum of 18 hours) is also required. In addition to performance or composition instruction (16 hours), the music core (44 credit hours minimum) includes music theory, aural skills, keyboard harmony, ethnomusicology/musicology, conducting, technology for musicians, pedagogy, and ensemble. Liberal arts core requirements (minimum of 30 hours) include English, the humanities, courses chosen from history or social science, mathematics or natural science, and academic electives. Students may take free electives to total 126 hours.

Through a dual B.Mus.Arts/MBA program, interested students in the musical arts degree have an opportunity to compress both the bachelor of musical arts at the Blair School of Music and the master of business administration at the Owen Graduate School of Management into ten semesters in residence. Application for this program is made early in the fall semester of the junior year. First-year students will be admitted to the B.Mus.Arts through the admissions process of the Blair School. Students must declare the concentration within music or the field outside of music of the B.Mus.Arts no later than the tenth day of the first semester of the junior year. Sample curriculum plans are in the *Blair Student Handbook* at blair.vanderbilt.edu/academics.

Bachelor of Musical Arts Degree Requirements

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8-10 hours (every semester in residence)

Auditions for major ensembles are required each semester until requirements are fulfilled. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

Strings, woodwinds, brass, harp, percussion—(10 hours minimum) Five semesters MUSE 1010 (including four semesters of MUSE 1130, 1140, 2220, 2210, or 2240, ½ credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career); and three semesters ensemble of choice. Double bass majors may choose MUSE 2270 instead of 2210, 2220, or 2240. MUSE 2280 may substitute for one required semester of MUSE 2210, 2220, or 2240 after completing two semesters of MUSE 2210, 2220, 2240. Double bass majors may substitute MUSE 2280 for one required semester of MUSE 2210, 2230, or 2270 after completing two semesters of MUSE 2210, 2230, or 2270.

Piano—(8 hours) One semester chosen from MUSE 1010, 1020, 1030, 2120, or other approved conducted choir; one semester of 2300; three semesters of 2210, 2230, 2310, 2320, or 2330; three semesters ensemble of choice with adviser’s approval.

Voice—(8 hours) Eight semesters MUSE 1020 or 2120 as assigned (or 2330 if demonstrated schedule conflict exists); juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120.

Composition—(8 hours) Eight semesters, selected with adviser's approval.

Jazz Studies - (8 hours) Five semesters chosen from MUSE 1310, MUSE 1330, or MUSE 1320; three semesters ensemble of choice with adviser's approval.

INDIVIDUAL PERFORMANCE or COMPOSITION (for composition students) INSTRUCTION. 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. Performance class (or composition studio class for composers) every semester in residence

(BASS 1000, BSSN 1000, CLAR 1000, CLLO 1000, COMP 1000, FLUT 1000, HARP 1000, HORN 1000, JAZZ 1000, OBOE 1000, PERC 1000, PIAN 1000, SAX 1000, TROM 1000, TRPT 1000, TUBA 1000, VLA 1000, VLN 1000, VOIC 1000)

PEDAGOGY. 2 hours. MPED in the area of individual performance; COMP 1000 for composition; MUED 2140 for jazz studies.

OTHER MUSIC. 4 hours. MUSO 1201, 1400, 1410, 1420 (required for voice only); 4 hours of 1100-level performance instruction or MUED 1010-1040 and 3 hours MUTH 3110 (required for composition only); MUSO 1130 (required for percussion only); 3 hours from JAZZ 1210, 1220, 1230, 1150, or MUTH 3120 (required for jazz studies only); 2 hours of VOIC 1100, one in each of the first two semesters in residence (required for jazz studies voice only)

MUSIC ELECTIVES. To complete a minimum of 63 hours in music.

DISCRETE AREA OF COMPETENCE. Minimum of 18 hours in a specific field outside of music, such as a minor or major in another school, a pre-professional course of study, or a self-designed interdisciplinary area. Self-designed interdisciplinary areas and new concentrations with a significant number of courses from another Vanderbilt school/college may be developed in consultation with the appropriate department. Must be declared no later than the 10th day of the first semester of the junior year.

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

Liberal Arts Core

The liberal arts core affords music students the opportunity to develop a broad-based understanding of intellectual endeavors and methods in a variety of disciplines, to explore the interconnectedness of music, arts, and other humanistic pursuits, and to articulate their thinking in clear and effective language. The curriculum, which provides maximum flexibility for each student, requires a minimum of 30 hours (33 hours for composition majors), satisfied through required categories as noted below. Students electing a second major outside of music complete only the Blair liberal arts core; they are not expected to fulfill the core requirements (such as AXLE) of another Vanderbilt school or college. Hours earned toward the Blair liberal arts core may also be counted toward a second major or minor, if appropriate. Students admitted with a deficiency relative to high school credits must plan their liberal arts work to overcome the deficiency. 1001 courses do not count for liberal arts core credit.

English/writing (6 hours)

Students must complete writing course MUSL 2200W during the first year. A second English/writing course* of at least three credit hours, chosen from:

- Advanced Placement or International Baccalaureate credits in English/ Writing (consult the chapter on Admission for current policy)
- First year writing seminars (1111) in any discipline
- Writing courses in the English language in any discipline, designated by W in the course
- English: all courses
- Communication Studies: 1500, 1850
- MUSL 2330

*Students with a score of 770 on the Evidence-Based Reading and Writing section of the SAT with a minimum score of 39 in Writing and Language, or with a score of 35 on the English portion of the ACT, may exempt the second English/writing course, substituting 3 hours of any academic elective. Students who do not present a score of 660

on the Evidence-Based Reading and Writing section of the SAT test (with a score of 27 in Reading and 28 in Writing and Language), or a score of 30 on the English portion of the ACT test, must enroll in English 1100 in the first semester.

Humanities (9 hours)

HUMANITIES REQUIREMENTS

MUSL 2100. Students should complete this required course during the first year.

Six additional hours of humanities electives (listed below)

For composition majors (B.Mus.), 15 hours minimum, including MUSL 2100: one year of French, German, or Italian; and 6 hours chosen from 2000-level or higher art history, 2000-level or higher English, and 2000-level or higher philosophy.

For voice performance majors (B.Mus.), 9 hours: MUSL 2100 and 6 hours (two semesters) chosen from French, German, and Italian.

HUMANITIES ELECTIVES

African American and Diaspora Studies: 1506 and all HCA-designated courses

Anthropology: All HCA-designated courses

Arabic: All courses

Aramaic and Classical Syriac: All courses

Asian Studies: 1201, 2100W, 2511, 2512, 2513W, 2607, 2608, 3151

Catalan: All courses

Chinese: All courses

Cinema and Media Arts: All courses except W courses

Classics: All, except SBS-designated courses

English: All courses

European Studies: All HCA-designated courses

French: All courses

Gender and Sexuality Studies: All HCA- and US-designated courses, 2239, 2248

German: All courses

Greek: All courses

Hebrew: All courses

Hindi-Urdu: All courses

History of Art: All courses (art studio courses excluded)

Humanities: All courses

Italian: All courses

Japanese: All courses

Jewish Studies: All HCA- and US-designated courses

Korean: All courses

Latin: All courses

Medicine, Health, and Society: All HCA-designated courses

Musicology/Ethnomusicology: 1111-02, 1111-03 (Music and Modernism; Shakespeare and Music), 1300, 1610, 3155

Philosophy: All courses except 1003 and 3003

Portuguese: All courses

Religious Studies or Divinity School: All courses

Russian: All courses

Spanish: All courses

Theatre: All courses offered for AXLE credit

Tibetan: All courses

Ugaritic: All courses

History, Social Science (3 hours)

HISTORY

Classics: Only SBS designated courses

History: All courses

Musicology/Ethnomusicology: 1111 (Music and Global Health), 2110, 2150, 2600

SOCIAL SCIENCE

African American and Diaspora Studies: All courses except 1506 and HCA-designated

American Studies: 2100, 3890

Anthropology: All courses except HCA designated

Asian Studies: All courses except HCA designated

Communication Studies: All AXLE courses except HCA designated

Economics: All courses offered for AXLE credit

European Studies: All courses except HCA designated

Gender and Sexuality Studies: All courses except HCA and US designated

Human and Organizational Development (Peabody): All 3-hour courses except 1115 and practica

Interdisciplinary Studies: 3001

Jewish Studies: All SBS-, INT-, and P-designated courses

Latin American Studies: All AXLE courses

Medicine, Health, and Society: All SBS-, INT-, and P-designated courses

Musicology/Ethnomusicology: MUSL 1111 (Music and Global Health), 2110, 2150, 2600

Political Science: All courses

Psychology (A&S): All courses except MNS-designated

Psychology and Human Development (Peabody): All 3-hour courses from 1205-3800 inclusive

Public Policy Studies: All courses

Sociology: All courses

Mathematics, Natural Science (3 hours)

Students who score below 550 on the SAT Math Section or below 22 on ACT Math should take MATH 1010 or 1005. For integrated studies/teacher education majors, 3 hours statistics (PSY-PC 2110 [Peabody]) or calculus (MATH 1010, 1011, 1100, 1200, 1201, 1300, 1301).

MATHEMATICS

Computer Science: CS 2212

Mathematics: All courses

Philosophy: 1003 and 3003

Political Science: PSCI 2259

Psychology (Peabody): PSY-PC 2110

NATURAL SCIENCE

Astronomy: All MNS-designated courses, including accompanying labs

Biochemistry & Chemical Biology: All courses designated for AXLE credit, with accompanying labs

Biological Sciences: All AXLE courses, with corequisite labs

Chemistry: All AXLE courses, with corequisite labs

Earth and Environmental Sciences: All MNS-designated courses

Neuroscience: All MNS-designated courses

Physics: All MNS-designated courses, including accompanying labs

Psychology: All MNS-designated courses

Academic Electives (9 hours)

For composition majors (B.Mus.), 2-6 hours, to complete 33 hours in liberal arts.

For integrated studies/teacher education majors, a total of 9 hours, including specifically EDUC 1220 (3 hours) and SPED 1210 (3 hours). For voice performance majors (B.Mus.), 5-9 hours to total 30 hours in liberal arts.

Academic electives, drawn from courses earning 3 or more credits, may include:

- Any course listed in the Liberal Arts Core
- Non-music courses in American studies, business (BUSA), computer science, data science, engineering science, human and organizational development

- Any course in the Divinity School

Practicums and internships may not count as academic electives.

Free electives (sufficient to complete 126 hours)

Any course in any Vanderbilt school.

Note: MWEL courses and MUSO 1240 and 1241 count only as free electives for Blair majors.

Additional Programs in the Blair School of Music

Minor Areas and Concentrations

Teacher Education

Blair-to-Owen

Minor Area and Concentration Requirements

Concentrations and the minor in a second instrument are open to bachelor of music and bachelor of musical arts degree students. Honors in Musicology and Ethnomusicology is open to all undergraduates. Deadline to declare a concentration or minor is the fifth day of the first semester of the senior year. For the integrated studies major, the deadline to declare a required concentration is the midpoint (on the last day students may withdraw from classes) of the fifth semester in residence.

Concentration in Collaborative Arts

Concentration in Composition

Concentration in Conducting

Concentration in Ethnomusicology

Concentration in Jazz

Concentration in Multiple Woodwinds

Concentration in Music and the Mind

Concentration in Musicology

Concentration in Pedagogy

Concentration in Music Theory

Honors in Musicology and Ethnomusicology

Minor Instrument

CONCENTRATION IN COLLABORATIVE ARTS. 24 hours

Musicology/Ethnomusicology: MUSL 3220 or 3221

Performance: HRPS 1100 (1 hour), MUSO 4970 (1 hour)

Other Music: MUSO 1400, 1410, 1420; MREP 3310 or 3311, 3330; MUSO 3850 (2 hours in vocal coaching or chamber music literature)

Ensemble: One semester chosen from MUSE 1010, 1020, or 2120; one semester of MUSE 2300; one semester of MUSE 1030 (as apprentice pianist); one semester each of MUSE 2210, 2230, 2310, 2320, and 2330; and four

additional semesters of MUSE 2210, 2230, 2310, 2320, 2330, or other with adviser's approval

Liberal Arts: Must include one semester each in two different languages chosen from Italian, German (GER 1105 is recommended), or French. Students with previous study in one of these must study the other two.

CONCENTRATION IN COMPOSITION. 20 hours minimum

Prerequisite: COMP 1100; submission of portfolio of three representative works, with recordings; department approval. Composition: 4-6 hours over a minimum of 4 semesters in COMP 1150

Choice of four from MUTH 3110, 3120, 3130, 3140, 3170, 3200, 3210, 3220, 3222

Choice of two (6-7 hours) from ARTS, CMA, ENGL 1250W, ENGL 1290, HART 1105 or higher, THTR

CONCENTRATION IN CONDUCTING. 32 hours minimum (20 hours in music)

Department approval required before MCON 3030, 3050 and 3051. Criteria to include evidence of prior experience in conducting. Integrated Studies students interested in conducting should declare the individually-designed concentration in the fifth semester, pending faculty approval to declare the conducting concentration before the seventh semester. Other B.Mus. or B.Mus.Arts students may declare the conducting concentration in the fifth semester, but will need departmental consent for MCON 3050 and entrance into the senior year of the concentration. Departmental approval is required before 3030, 3050 and 3051. Criteria to include evidence of prior experience in conducting.

Composition/Theory: MUTH 3450, 3460, 3470, 3480; MUTH 3110

Conducting: MCON 3000 (required in music core); MCON 3010 or 3020; MCON 3030; MCON 3040, 3041, 3042, 3043; MCON 3050, 3051

Other Music: MWEL 1140 or 2120

Liberal Arts: Four semesters of one language, selected from French, Italian, German, or Russian

CONCENTRATION IN ETHNOMUSICOLOGY. 20 hours minimum

Department approval required

Musicology/Ethnomusicology: Choice of MUSL 3000-level or above, except MUSL 3100, 9-12 hours
Composition/Theory: Choice of MUTH 3140, MUTH 3200, or 3210, 2-6 hours

Cognate Area or Foreign Language, 6-16 hours:

1. Cognate area in AADS, AMER, ANTH, CMA, EUS, GSS, HIST, LAS, PHIL, SOC, or other area with department approval, 6-9 hours, or
2. Foreign Language, 6–16 hours, 4 semesters:
    - Introductory-level competence, or one-year May be satisfied through placement exam, AP/IB credit, or for-credit course work. Students who test out of introductory-level competence need only 2 semesters (minimum 6 hours) of 2000-level or above, 6-8 hours, 2 semesters.
    - 2000-level or above language and/or culture courses, 6-8 hours, 2 semesters.

CONCENTRATION IN JAZZ. 20 hours minimum

Department approval required for admission into the concentration. B.Mus. and B.Mus.Arts students are eligible to audition for a faculty committee no earlier than the end of their first year.

Literature/History: MUSL 1620

Composition/Theory: MUTH 3120; JAZZ 1150

Other Course Work: JAZZ 1210, 1220, or 1230 (2 semesters, 2 hours); MUED 2140

Performance: JAZZ 1100 (minimum of 4 semesters/4 credit hours); MUSO 4972 (in addition to recital required for major) or MUSO 3850 Senior Project (1 hour)

Ensemble: MUSE 1310, 1320, or 1330 (minimum of 4 semesters/credit hours)

CONCENTRATION IN MULTIPLE WOODWINDS. 23 hours

Department audition, consisting of performances on both secondary instruments, required before the end of the second semester in residence. Not available to performance majors. Three-, four-, and five-instrument options are possible.

Composition/Theory: MUTH 3110

Performance: 1100-level study in at least two secondary instruments, 4 semesters and 8 credit hours for each instrument; MUSO 4970, with repertoire for both primary and secondary instruments; corequisite performance classes required when enrolled in applied study; each secondary instrument must be performed in a large ensemble for at least one semester (instead of primary instrument)

Other Music: MPED 3140 in primary instrument, recommended in secondary instrument(s); MREP 2140 in primary instrument

CONCENTRATION IN MUSIC AND THE MIND. 23 hours

This concentration satisfies the area of discrete competence for the bachelor of musical arts. By using free and academic electives, this concentration could be completed in addition to a minor in neuroscience or psychology.

It is also available to B.Mus. students, but it will not satisfy the music hours requirement for integrated studies.

Liberal Arts: NSC 2201, PSY 1200, PSY 3750, PSY 3120, NSC 3269, PSY 3890, PSY-PC 3650 (PSY-PC 2110 recommended, NSC 3274 optional)

Aural Skills: MUTH 3450, MUTH 3460

CONCENTRATION IN MUSICOLOGY. 20 hours minimum

Department approval required

Musicology/Ethnomusicology: Choice of MUSL 3000-level or above, except MUSL 3100, 9-12 hours

Composition/Theory: Choice of MUTH 3140, MUTH 3200, or 3210, 3-6 hours

Cognate Area or Foreign Language, 6-16 hours:

- Cognate area in AADS, AMER, ANTH, CMA, EUS, GSS, HIST, LAS, PHIL, SOC, or other area with department approval, 6-9 hours, or
- Foreign Language, 6–16 hours, 4 semesters:
    - Introductory-level competence, or one-year May be satisfied through placement exam, AP/IB credit, or for-credit course work. Students who test out of introductory-level competence need only 2 semesters (minimum 6 hours) of 2000-level or above, 6-8 hours, 2 semesters.
    - 2000-level or above language and/or culture courses, 6-8 hours, 2 semesters

CONCENTRATION IN PEDAGOGY. 19 or 20 hours

Music Cognition course work: MUSO 3100 or MUSO 3850 (independent study in teaching Aural Skills, 2 hours)

Instrumental Literature: Choice of MREP 2110, 2120, 2121, 2130, 2140, 2141, 3310, 3311, 3330, or MUSO 3850 (in field, 2 hours)

Pedagogy course work: Choice of MPED 3110, 3120, 3121, 3125, 3127, 3128, 3129, 3130, 3140, 3142, 3144 or MUSO 3850 (in field, 2 hours), and Pedagogy Practicum MPED 3870 (2 hours)

Pedagogy Internship: MPED 3880 (2 semesters, 6 hours)

Senior Recital: MUSO 4970

Liberal Arts: Must include PSY-PC 1250 and 2600 (Peabody courses)

CONCENTRATION IN MUSIC THEORY. 18-20 hours

Departmental approval required for admission to this concentration.

Composition/Theory: MUTH 3200, MUTH 3210 or 3220, and minimum of 13-15 hours in COMP 1100 and/or any 3000-level MUTH courses

HONORS IN MUSICOLOGY AND ETHNOMUSICOLOGY. 9 hours

Departmental approval required for admission to this program; see regulations in the Honors section of the catalog.

Thesis: Departmental approval of a formal thesis prospectus, MUSL 4998-4999 (6 hours), and successful completion of an oral defense.

Course work: One course beyond the MUSL core chosen from MUSL 3220-3240, 3160, 2610, or 3890 (3 hours)

The MUSL credit hours of this program may double-count in the concentration in musicology or ethnomusicology.

MINOR INSTRUMENT. 10 hours

Ensemble: Participation on minor instrument (including voice) in two separate ensembles in addition to major instrument requirement, as assigned (2 hours)

Performance: Minimum of four semesters (8 hours) in a second performance area (any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, voice, or baroque instrument). Students must meet minimum performance standards, earning a total of 8 hours.

Consent of instructor and department chair required. NOTE: Composition majors may satisfy the primary major ensemble and performance instruction requirements with courses also used to fulfill the minor instrument requirements.

Teacher Education

The Blair School and Peabody College offer a program for students interested in teacher licensure. Students completing this program earn the bachelor of music (B.Mus.) majoring in the integrated studies/teacher education track for four years, and the master of education (M.Ed.) in the fifth year to complete professional education requirements. During the junior year, application is made to Peabody College. The M.Ed. work requires one calendar year, June–May. Students may elect to work toward licensure in either instrumental/general or vocal/general music, based on their interest and ability to perform at a level sufficient for placement in the appropriate performing ensemble. The curriculum includes a strong music performance emphasis; a solid foundation in musicology/ethnomusicology, theory, and the liberal arts; undergraduate and graduate courses in psychology and education; and practica (practical experience) four of the five years of study, with at least 15 weeks of student teaching in field placements. Practica constitute a wide variety of grade K-12 experiences, including public school, private school, and Blair Academy programs such as Suzuki strings, Blair Children’s Chorus program, and the Nashville Youth Orchestra program. Students complete the same music core requirements as any other B.Mus. candidate. The liberal arts core is adapted to fulfill state licensure requirements.

Junior Mid-Program Review [Screening I]

All students admitted to this program at matriculation must be formally continued through a process called Junior Mid- Program Review. Criteria for this review are listed below. Students not approved can complete the general integrated studies major.

Faculty evaluation of a student's qualifications for continuation in a teacher education program includes academic, performance, and disposition factors such as the following:

1. Dependability (as evidenced by good attendance and academic performance in classes and practica)
2. Professional and ethical behavior (honesty, acceptance of responsibility, emotional maturity)
3. Attitude and interpersonal skills (including the ability to work with children and with peers)
4. Academic competence

Specific Criteria

1. A minimum cumulative grade point average of 2.500.
2. Successful completion (C- or better) of EDUC 1220 and SPED 1210
3. Successful completion (C- or better) of MUTH 2200, MUTH 2220, MUSL 2200W and MUED 3870
4. Successful completion (C- or better) of two additional Vanderbilt courses which count towards the Liberal Arts
5. Departmental interview

General Criteria

These criteria rest on the professional judgment of appropriate faculty members, who are polled following the student's application for Junior Mid-Program Review.

1. Endorsement by the appropriate faculty that the applicant has demonstrated the academic and musical qualifications expected of Vanderbilt teacher education
2. Endorsement by the appropriate faculty that the applicant has demonstrated the personal and character traits expected of Vanderbilt teacher education

Procedure for Junior Mid-Program Review [Screening I]

Students apply for continuation in the teacher education program [Screening I] through the Blair program director. Applications must be submitted in the fall semester of the junior year. Deadline for submitting applications for Junior Mid-Program Review [Screening I] is 1 October. A departmental interview is then held with each candidate to review the student's academic progress and disposition criteria of dependability, professional and ethical behavior, attitude, and interpersonal skills.

Fifth Year Curriculum

SUMMER		Semester hours
EDUC 6510	Principles of ELL Education	3
EDUC 6010	Psychological Foundations of Education (or an approved elective course)	3
EDUC 6310	Teaching in Secondary Schools	3
MUED 5000	Philosophical Foundations and Contemporary Issues in Music Education	3
FALL		
EDUC 6300	Social/Philosophical Aspects of Education	3
EDUC 6320	Practicum in Music Education	1
EDUC 7960	Independent Study in Music (may be taken in summer; requires approval of Blair associate dean)	2
or MUED 5100	Advanced Studies for the Wind Band Conductor	
MUED 5010/5020	Methods and Materials in Teaching Music, Instrumental or Vocal/Choral	3
MUED 5030	Methods and Materials in General Music, PreK through 12	3
SPRING		
EDUC 7974	Internship in Teaching: Music	6
EDUC 7975	Internship Seminar: Music	1
	(A capstone project is also required)	
	Total hours:	31

Admission to Student Teaching [Screening II]

The semester prior to the one in which a student plans to student teach, he/she must apply for student teaching (Screening II) and request student teaching placements. The student should be enrolled in any remaining required prerequisite courses. Applications will be processed in the Office of Teacher Licensure, and if eligible, forwarded to the appropriate faculty for review and vote. It is the student's responsibility to complete the application at the appropriate time.

The criteria that must be met for a student to be admitted into student teaching are as follows:

1. Specific Academic Criteria
    1. Formal admission to a teacher education program for initial licensure granted
    2. Approved program of studies and licensure audit forms on file
    3. Successful completion of all courses and field work required and prerequisite for student teaching
    4. Minimum cumulative grade point average of 3.0 (4.0 scale)
    5. Successful completion of standard first aid and CPR training (submit certificate copies prior to or with the Screening II application)
2. Specific Faculty Evaluative Criteria
    1. Dependability (as evidenced by good attendance in classes and practica and the completion of required assignments and procedures on time)
    2. Professional and ethical behavior (honesty, acceptance of responsibility, emotional maturity, etc.)
    3. Attitude and interpersonal skills (including the ability to work with children and with peers)
    4. Academic competence (It is possible for a student to meet minimum grade point requirements and

pass all courses and still have specific academic weaknesses which might cause denial of screening applications.)

5. Teaching competence (as evidenced by successful completion of practica requirements). It is possible for a student to meet minimum grade point requirements and pass all courses and still have specific performance weaknesses which might cause denial of screening applications. Each Screening II application must be accompanied by additional documents, depending on the endorsement(s) being sought.

Department of Teaching and Learning Additional Documents

1. Professional resume
2. Parent Letter (only required for Secondary Education)
3. Copy of first aid and CPR cards to amanda.vandoorn@vanderbilt.edu

Special Education Additional Documents

1. Professional resume
2. Philosophy of Teaching Statement
3. Copy of first aid and CPR cards to amanda.vandoorn@vanderbilt.edu

Departmental faculty will consider all criteria for each individual students and will vote on a recommendation for each student. Students who are approved to student teach will receive notification of their student teaching placements no later than during the Student Teacher Orientation at the beginning of the student teaching semester.

All Vanderbilt teacher education programs are approved by the Council for the Accreditation of Educator Preparation (CAEP).

3+2 B.Mus.Arts/MBA Blair-to-Owen Program

The five-year dual-degree program between the Blair School of Music and the Owen Graduate School of Management allows a small cohort of particularly motivated students to overlap their undergraduate course work with work toward the MBA, facilitating the earning of both the undergraduate and graduate degrees in five years (ten semesters). By combining three and one-half years in Vanderbilt's Blair School of Music with one and one-half years of study in the Owen School, students may obtain both the bachelor of musical arts and the master of business administration in five years. The baccalaureate from the Blair School is awarded at the end of the fourth year, and the MBA from the Owen School after the fifth year. Students interested in pursuing this program must be enrolled in the musical arts degree.

Required course work includes the normal Blair course work for the musical arts degree, for a minimum of 63 credit hours in music. The liberal arts core will also follow the requirements for the major, but must include the following specific requirements:

- Calculus (1 semester)
- Statistics, e.g., ECON 1500: Economic Statistics
- ECON 1010: Principles of Macroeconomics
- ECON 1020: Principles of Microeconomics
- ECON 3012: Microeconomics

A curriculum plan, including recommended electives, is provided in the *Blair Student Handbook*.

Students must apply to the Owen School for admission to the five-year program during their junior year. Students should apply in Round 1 of the MBA application cycle (typically early October) of the junior year, and early application and a standardized test score (e.g., GMAT, GRE) are recommended. Acceptance into the five-year program is extremely competitive and requires advanced standing earned in undergraduate courses. Being deficient

in full-time work experience, the 3+2 student must enhance their portfolio with an internship and outstanding academic performance, and also show a strong commitment to a rigorous business education. The Summer Business Institute (Accelerator), as administered by the Owen Graduate School of Management, is strongly recommended for 3+2 applicants prior to matriculating at Owen. The successful applicant will bring an accomplished academic record (normally a GPA of 3.3 or better), satisfactory internship or work experience, an ability to articulate his or her own preparedness for the work environment, and a strong endorsement from Vanderbilt faculty.

Students who are accepted to the 3+2 program will remain registered as B.Mus.Arts students through fall of senior year, and will register as Owen students in spring of senior year. Academically, students will take a full load of business courses both in fall and spring of senior year while completing the final B.Mus.Arts degree requirements (normally, lessons and ensembles). Students must complete a minimum of 62 credit hours at Owen over four semesters. Fifteen hours (normally in fall of the senior year) of Owen School courses approved by Blair may be counted toward completion of the undergraduate degree. Students with questions may contact Liz Scowden (liz.scowden@vanderbilt.edu) in the Owen Academic and Student Affairs Office. The completion of the B.Mus.Arts degree requirements prior to fall of the student's fifth year is required for continuation in the MBA program.

Tuition and Financial Aid

The scholarship or other financial aid commitment of the Blair School will not be continued automatically beyond the seventh semester for students enrolled in the dual-degree program. Eighth-semester financial aid is the student's responsibility. Students should notify the Owen School with their application if they are interested in being a candidate for an Owen scholarship during their MBA studies. Early application is recommended. *Need-based aid will still apply.*

Students pay tuition to the undergraduate school for the fall semester of their fourth year, after which all tuition is paid to Owen (and reflects graduate school tuition rates). The Blair School of Music will waive fees for the required performance instruction during spring of the fourth year to facilitate completion of the B.Mus.Arts requirements.

Blair School of Music Academic Regulations

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Honor System

All academic work at Vanderbilt is done under the Honor System (see the chapter on Life at Vanderbilt.)

Faculty Advisers

All entering students are assigned academic advisers who assist in the planning of programs and course schedules. Students are required to meet with their advisers prior to registration for each semester.

Class Attendance

Students are expected to attend all sessions of each class in which they are enrolled. Attendance is usually a factor in determining the final grade in a course. A student who fails to abide by the attendance policy set by the course instructor is subject to removal from the course. The last day before and the first day after official holidays are considered to be the same as any other day on which classes are scheduled. Assignments are made for classes scheduled on these days, and tests may be given in them. Students should take this fact into account in making travel plans.

Classroom Recording Policy

The use of technologies for audio and video recording of lectures and other classroom activities is allowed only with the express permission of the instructor. In cases where recordings are allowed, such content is restricted to personal use only, unless permission is expressly granted in writing by the instructor and by other classroom participants, including other students. Personal use is defined as use by an individual student for the purpose of studying or completing course assignments. When students have permission for personal use of recordings, they must still obtain written permission from the instructor to share recordings with others.

For students registered with Student Access Services and who have been approved for audio and/or video recording of lectures and other classroom activities as a reasonable accommodation, applicable federal law requires instructors to permit those recordings. Such recordings are also limited to personal use, except with permission of the instructor and other students in the class.

Credit Hour Definition

Credit hours are semester hours; e.g., a three-hour course carries credit of three semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements which exceed this definition. Certain courses (e.g., dissertation research, ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester will be included in the course description.

Course Load

Tuition is charged on the basis of a normal course load of 12 to 18 semester hours. Course loads outside the norm, which must be recommended by the student’s adviser and approved by the associate dean, are charged at an hourly tuition rate. Students who enroll in fewer than 12 hours are placed on probation, unless their underload is necessary because of outside employment or illness. The maximum course load for the summer session is 12 hours (6 hours for a summer half-session). A student must be enrolled in a minimum of 12 hours to be classified as a full-time student.

Advanced Placement

Advanced Placement with Credit. Advanced placement with credit is granted in a number of areas (see the chapter on Admission).

Advanced Placement without Credit. Students may be admitted to advanced music courses on the basis of placement tests at Blair, but no credit is awarded for music courses exempted.

Transfer Credit

Transfer courses are often taken as free electives, but they may also earn liberal arts core credit. They may not fulfill the music core requirements, count as part of the last 30 hours of residence, serve as repeat credit, or be taken on a Pass/Fail basis. Work transferred from another institution will not carry with it a grade point average. No course in which a grade below C– was received will be credited toward the B.Mus. or B.Mus.Arts. It is the student's responsibility to provide all of the information required by the Office of the University Registrar to assess the program for which transfer of credit is requested. Work presented for transfer must be from a regionally accredited college or university. Information on the evaluation process and policies is available at registrar.vanderbilt.edu/transfer-credit.

Summer studies. Students enrolled at Blair may receive transfer credit for summer courses taken at another regionally accredited two-year or four-year college or university. This may include work at festivals or camps, if offered through a regionally accredited institution. To qualify for summer credit, a student must be in good standing, consult the Office of Academic Services, and submit courses for evaluation through the Transfer Credit portal in YES. A detailed course syllabus is required in order for a course to be evaluated. Deadline for pre- approval is April 1.

Semester work at another institution. Students wanting to receive transfer credit for a semester of work at another regionally accredited institution must receive approval in advance from the associate dean. To qualify for such credit, the student must be in good standing and must present a plan that makes clear the educational rationale for such work, the ways in which it supplements the Vanderbilt curriculum, and the equivalence of standards to those at Vanderbilt. Approval of the overall plan must be followed by approval of specific courses by the associate dean and submission of courses through the transfer credit evaluation process in YES. A detailed course syllabus is required in order for a course to be evaluated. Students enrolled full time (i.e., carrying at least 12 credit hours) during a regular (fall or spring) semester are assumed to be engaged in full-time study at Vanderbilt. Such students are not permitted to take additional course work elsewhere, for transfer credit, during the semester. This includes online courses as well as courses offered by nearby institutions.

Transfer Students

Transfer applicants must comply with university standards (see the chapter on Admissions). The required audition is of major importance in the evaluation of any application. Composition applicants must submit a composition portfolio and interview with a member of the composition faculty.

Transfer students must submit catalog copy and course syllabi from the previous institution(s). A level of performance study is assigned based on the entrance audition. Credit for courses is subject to evaluation. Music courses may require an examination to verify placement and/or credit at Vanderbilt, and credit for non-music courses must be approved through the YES Transfer Credit portal. Transfer students must complete at least half the credit required for the degree, or 63 hours, at the Blair School. See also, *Transfer courses.*

Intra-university transfer. Students intending to transfer within the university should meet with the head of academic advising and file appropriate paperwork. For students transferring out of the B.Mus. or B.Mus.Arts program, music

fees are covered through the end of the final term as a B.Mus. or B.Mus.Arts student. All students are expected to maintain a minimum of 3 credit hours within their home school until transfer is approved. First-year students are ineligible for transfer status until the end of their second semester. Students who transferred to Vanderbilt University from another institution are eligible for intra-university transfer after having completed one semester in residence and having achieved sophomore standing. See also, the chapter on Admissions.

Study Abroad

Five Vanderbilt study abroad programs are coordinated with the degree programs in music: the IES programs in Milan, Italy; Vienna, Austria; and in Amsterdam, The Netherlands; the DIS program at the Royal Danish Academy of Music in Copenhagen, Denmark, and the IFSA/Butler program at the University of Sydney and Sydney Conservatorium of Music in Sydney, Australia. These programs include provisions for lesson and ensemble credits, contingent upon audition and admission to the program. These will count towards the Blair music core and are covered at least in part by regular tuition and fees, although students are responsible for any instrument rental fees they accrue. All programs also allow for a range of liberal arts and elective credits. Further information can be obtained from the Vanderbilt Global Education Office, Suite 103, Student Life Center, or vanderbilt.edu/geo, and from Blair's associate dean.

Blair students may also elect any of the Vanderbilt-approved study abroad programs; see descriptions under "Study Abroad" in the front chapters of the catalog. Blair students in these programs have typically enrolled in music electives, courses in the liberal arts core, and course work toward minors and second majors. Students in these programs typically arrange alternative performance or composition instruction, and those fees are usually not covered by tuition. It should be noted that if a program has been approved by Vanderbilt students must enroll in the program via the Global Education Office. In no case, after matriculating at Vanderbilt, may a student apply to participate in a program for transfer credit through a different university, or through an external agency, and then seek to transfer that credit into Vanderbilt. Any student studying abroad must register with Vanderbilt's global travel office.

Registration

Registration is available to entering first-year students in June. Continuing students register on dates specified each semester in the University Calendar and as assigned in "YES" (Your Enrollment Services, yes.vanderbilt.edu). Conferences with faculty advisers are required before students may register. Detailed information on registration is available on the University Registrar website, registrar.vanderbilt.edu/registration/registration-info.php. Prior to registration, students should refer to the sample curriculum plans in the *Blair Student Handbook*.

Records and the degree audit should be checked regarding progress toward completing the following:

1. Music core
2. Liberal arts core
3. Additional major area requirements

A student whose registration choices are denied or altered (full or cancelled class, lack of prerequisite courses, etc.) may select alternate courses during the Open Enrollment registration period.

Change of Course

Course changes may be made during the Open Enrollment period or the official Change Period (Drop/Add) as published in the University Calendar. All changes need the adviser's approval. A course dropped during the Change Period does not show on a transcript.

A course may be dropped or changed from P/F to graded status prior to the deadline for withdrawal published in the

University Calendar. The approval of the adviser and associate dean is required (see Grading System regarding withdrawal grades). Regularly enrolled students must maintain a minimum course load of 12 hours.

Grading System

A: excellent

B: good

C: satisfactory

D: minimum pass work

F: failure

Under certain circumstances the following grades may be awarded (see explanations below):

Pass: D– or above

W: withdrawal

M: missed final examination (prior approval needed; see below)

I: incomplete in some requirement other than final examination (see below)

Plus and minus modifiers may be associated with letter grades *A* through *D* as shown in the table below. Grade point averages are calculated using indicated grade point values.

Defined Grades with Corresponding Grade Points Per Credit Hour

A	= 4.0	C	= 2.0
A-	= 3.7	C-	= 1.7
B+	= 3.3	D+	= 1.3
B	= 3.0	D	= 1.0
B-	= 2.7	D-	= 0.7
C+	= 2.3	F	= 0.0

Grade Point Average

A student’s grade point average is obtained by dividing the total grade points earned by the number of hours for which the student registered, excluding courses audited or taken for no credit, those from which the student has withdrawn or for which an incomplete grade *(I or M)* has been authorized, and those with the grade *Pass.*

Pass/Fail Option (Elective)

Students may elect to take a limited number of courses on a Pass/Fail (P/F) basis. To enroll for a course on a Pass/Fail basis, students must have completed at least two semesters at Vanderbilt, must have achieved at least sophomore standing, and must not be on academic probation. The Blair Office of Academic Services can assist with P/F registration.

For B.Mus. and B.Mus.Arts students, the Pass/Fail option is limited to courses taken as free electives. Course work in the area of a minor or second major is governed by the school in which the department or program is housed. No more than one course may be elected on a Pass/Fail basis in any one semester. Only a total of 18 hours towards the 126-hour degree total may be taken on a Pass/Fail basis. Students electing course work on a Pass/Fail basis must be enrolled for 12 graded hours. A graduating senior who has permission to take fewer than 12 hours on a graded basis may take one course on a P/F basis in addition to the courses required for graduation. If the student does not graduate at the end of that semester, the grade *P* is automatically converted to the grade actually earned.

Students may register for grading on a Pass/Fail basis and may change from Pass/Fail to graded status until the deadline date for withdrawing from a course that is published in the Academic Calendar.

Those electing the Pass/Fail option must meet all course requirements (e.g., reports, papers, examinations, attendance, etc.) and are graded in the normal way. Instructors are not informed of the names of students enrolled on a Pass/Fail basis. At the end of the semester, a regular grade is submitted for the student enrolled under the P/F option. Any grade of *D-* or above is converted in the Student Records System to a *P,* while an *F* will be recorded if a student enrolled under this option fails the course. The *P* grade is not counted in the grade point average nor used in the determination of honors. The grade of *F* earned under the Pass/Fail option is included in the calculation of the grade point average.

Deficiency Notices

During the week after mid-semester, the Office of the University Registrar posts deficiency notices for students whose mid-semester grade in any course is a *C–* or below or whose work is incomplete (*I*). (Deficiency notices are found in the Academic Detail in YES at yes.vanderbilt.edu.) Deficiencies are issued as a matter of information and warning. Deficiencies do not show on transcripts, but information is sent to the faculty advisers and may be sent to parents of those students who have submitted a FERPA Release form indicating permission to release academic information to specific individuals.

A student who receives a deficiency notice is required to meet with the faculty adviser before the deadline for withdrawal at the end of the week. A student with deficiencies in two or more courses or any senior who receives a deficiency notice is also required to meet with the associate dean before the deadline for withdrawal (usually Friday of the week after mid-semester).

W: Withdrawal

A student may withdraw from a course after the official Change Period and prior to the deadline for withdrawal published in the University Calendar, generally Friday of the week after mid-semester. A change of course request form must be signed by the instructor, adviser, and associate dean and filed with the Office of Academic Services. (Students from other schools of the university must file with their home school.) Withdrawals after the published deadline result in an *F.* The grade *W* may be assigned by the associate dean to a student who seeks to withdraw from a course or from school after the deadline for reasons such as extended illness or unusual personal or family problems. No *W* grades are calculated in a student's grade point average.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or the default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available:

Incomplete (I): To be assigned only if the following conditions apply:

1) An extenuating circumstance has emerged after the course withdrawal deadline.

2) The student is up to date on all work prior to the extenuating circumstance.

3) The student successfully completed at least 60% of the assigned work throughout the semester.

4) The student requests the incomplete before the end of classes.

5) The student has been attending a significant majority of the classes.

Missing final exam or final evaluation (M): To be assigned only if the following conditions apply:

1) The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is recorded.

2) The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

No-Credit Courses (NC)

Students who wish to take courses on a no-credit basis must file with the Blair Office of Academic Services before the end of the Change Period. Students must attend class and complete all course work. A grade is recorded on the transcript with the notation "Grading Basis: No Credit Toward Current Degree," indicating that it does not count toward the degree.

No-credit courses count in the computation of a student’s academic load and tuition, but not in the computation of the grade point average.

Auditing

Regularly enrolled Blair students who want to audit courses in any of the undergraduate schools of the university must complete the change of course request form and obtain the written consent of the instructor to attend the class but do not register for the course for credit. No permanent record is kept of the audit. Regular students may audit one class each semester.

Repeated Courses

Certain courses, notably performing ensembles and variable credit performance instruction, may be taken more than once for credit. Otherwise, students may repeat any course to replace a grade, with no additional credit hours earned, subject to the following conditions:

- Courses taken at Vanderbilt may not be repeated elsewhere. A grade may not be replaced by a grade of “Pass.”
- A grade of *W* or *I* cannot replace a letter grade.
- Only the most recent grade is calculated in the grade point average, but all grades show on the transcript.

Dead Week

The last week of classes, i.e., the last seven calendar days before the final examination period each semester, is designated as dead week. No examinations of any type, including quizzes, portions of final examinations, recitals, or ensemble performances, may be given during this time without the express written permission of the dean and notification of students at least two weeks before dead week. Violations should be reported to the dean.

Examinations

All examinations are conducted under the honor system. Primary and alternate exam schedules, which allow two hours for a final exam in each course, are listed on the University Registrar's website. The instructor may use the alternate schedule in addition to, but not instead of, the primary schedule.

Alternatives to standard in-class final examinations, such as term papers or take-home, self-scheduled, or oral examinations may be given at the instructor’s discretion. A take-home exam is distributed at the last regular class meeting and must be completed by the latest time scheduled for the final examination.

Performance examinations are scheduled by area coordinators. Students giving full recitals during the semester may be exempted from performance examinations at the discretion of the instructor. If performance examinations are scheduled on a reading day (the day after classes end, when no course examinations are scheduled), students are also given the choice of a different day for their performance examinations.

A student who misses a final examination may be eligible to receive the grade *M* (see Temporary Grades).

Grade Reports

Grade reports and faculty critiques of performance examinations will be provided to students as soon as possible at the end of each semester. Grades are available online in the Academic Record, which is housed within YES (Your Enrollment Services) at yes.vanderbilt.edu. Occasionally, student academic information may be shared with appropriate faculty committees for purposes of promotion and tenure review.

A grade reported and recorded in the Office of the University Registrar may be changed only upon written request of the instructor, on certification that the original report was in error, with approval of the associate dean.

Academic Standards

For the purposes of class standing, a regular semester is defined as any fall or spring term in which a student is registered for at least 12 hours.

Class Standing

To qualify for sophomore standing, a student must complete a minimum of 24 hours with a grade point average of 1.8 and have completed two regular semesters.

To qualify for junior standing, a student must complete a minimum of 54 hours with a grade point average of 1.9, must complete MUTH 2200 and MUTH 2220, and must have completed four regular semesters.

To qualify for senior standing, a student must complete a minimum of 86 hours with a grade point average of 2.0 and have completed six regular semesters.

Academic Probation

Students are placed on probation if they fail to meet class standing benchmarks, as noted above. Students on probation must qualify for class standing in one additional semester or risk being dropped from the university.

Students are placed on academic probation: if they fail to meet class standing benchmarks; if they complete fewer than 12 hours in a fall or spring semester except in cases involving documented mitigating circumstances (illness, injury, or family emergency); or if their semester grade point averages fall below 1.8 overall or 2.0 in music. In addition, first-year students are placed on academic probation if they do not complete one writing course.

Incomplete grades may adversely affect class standing or grade point averages.

Students on academic probation may not transfer summer study credit, elect to take courses on a Pass/Fail basis, earn credit by departmental examination, or participate in any extracurricular performance activity. They are required to participate in a special academic advising program. Students will be placed on probation no more than twice. Students who are candidates for probation a third time will be dropped from the university.

Sudden Academic Insufficiency

Any student who fails by a wide margin to reach prescribed levels of academic achievement, either at the end of a semester or at mid-semester, is reviewed by the associate dean’s office in conjunction with the academic and studio adviser(s). If the student is not making satisfactory progress towards the degree, the student may be placed on probation or may be advised or required to take a leave of absence or advised to withdraw from the university.

Appeals of such findings should be addressed to the Blair Curriculum Committee.

Scholarship Student Requirements

Students receiving honor scholarships through Blair School of Music must be enrolled full time, taking all assigned music courses, must qualify for class standing, and must maintain each semester minimum grade point averages of 2.0 overall and 2.7 in music. Students receiving the Cornelius Vanderbilt Honor Scholarship must maintain a minimum 3.0 grade point average overall and 3.0 in music each year. Additional requirements may be stipulated in scholarship award letters.

Honor scholarship awards are considered for renewal annually. Student work will be reviewed at the end of spring semester for possible renewal for the following academic year. Temporary grades may adversely affect renewal. A student who falls short of the requirements will normally have the scholarship for one semester of grace, after which, if requirements are still not met, the scholarship will be lost.

Students receiving scholarships or grants as part of their financial aid packages (not honor scholarships) must qualify for class standing in order to be considered for renewal each year. Students receiving federal aid are expected to make satisfactory academic progress as outlined in the chapter on Financial Information.

Graduation Requirements

Candidates for degrees must have completed 126 hours and all curriculum requirements, have passed all prescribed examinations, and be free of indebtedness to the university.

Exceptions to stated degree requirements and procedures must be approved by the Curriculum Committee as the representative body of the faculty in matters pertaining to the curriculum.

The minimum grade point averages required for graduation are 2.0 overall and 2.0 in music. A student taking a second major must earn a 2.0 in that major in order for it to be certified on the transcript.

If requirements for graduation change, students may elect to be bound by requirements published in the *Undergraduate Catalog* in either their entering or their graduating year.

Immersion Vanderbilt

To fulfill the university requirement of Immersion Vanderbilt, a student must participate in an intensive learning experience that takes place in and beyond the classroom and culminates in the creation of a tangible final project. This requirement applies to all students who entered Vanderbilt as first-year students in or after summer 2018, as second-year students in or after summer 2019, or as third-year students in or after summer 2020.

Immersion Vanderbilt is divided into four broad pathways: civic and professional, creative expression, international, and research. The pathway selected by the student may focus on one or more than one of these areas and should provide a structure upon which students can brainstorm, plan, and execute their immersive projects across multiple years.

Most Blair students will take advantage of the senior recital experience or honors thesis in ethnomusicology/musicology to satisfy the requirements of Immersion Vanderbilt. However, students may choose to pursue an Immersion plan outside their home program. Students should consult the Office of Immersion Resources (OIR). Completion of the Immersion Vanderbilt graduation requirement will be shown on the student's degree audit, and the title of the Immersion project will be added to the student's transcript. vanderbilt.edu/immersion

Residence Requirement

A minimum of four semesters and at least 63 credit hours, as well as the last two semesters and the last 30 credit hours, must be spent in residence in the Blair School. Students transferring from other schools of the university must spend the last two semesters and at least the last 30 credit hours in residence in the Blair School. Students who wish to study abroad or study away in their penultimate semester may petition the Blair Curriculum Committee for a waiver of the residence requirement.

Senior Re-examination

A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed would prevent the student’s graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination. The re-examination must be requested through the student’s associate dean’s office, and, if approved, it is given immediately after the close of the last semester of the student’s senior year. A student who passes the re-examination will receive a D- in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course. Note: For engineering students taking engineering courses, the senior re-examination policy applies if a student fails not more than one course in the senior year.

Writing Portfolio

Students in their senior year are required to submit a writing portfolio drawn from academic course work from one or more classes to be evaluated by a faculty committee. Emphasis should be placed on demonstrating an ability to write clearly and effectively and on the student’s ability to form connections across two or more disciplines. Students are required to prepare a one-paragraph narrative explaining how the submitted work demonstrates the required competencies.

Degree Audit Reports

An online degree audit is available on YES to all Blair students, showing total hours earned, degree requirements completed, and those still to be met. Students should examine the audit carefully with their faculty advisers. Problems or suspected errors should be discussed immediately with the Blair Office of Academic Services.

Credit by Departmental Examination

In certain circumstances, students may be awarded course credit (a maximum of 8 hours) by departmental examination. This procedure is distinct from the awarding of credit through the College Board Advanced Placement Tests or the International Baccalaureate. Students apply for credit by examination through the Blair Office of Academic Services.

To earn credit by departmental examination, students must be enrolled for at least 12 hours, be in good standing, be recommended by their advisers, and have the approval of the appropriate department. In addition, students must seek prior approval of their study plan through the associate dean's office. Students may attempt to earn credit by examination in no more than two courses in one semester, only once in any course in one semester, and no more than twice in the same course.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after learning the results of the examination.

Students enrolled for at least 12 hours are not charged extra tuition for hours earned through credit by examination, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no-credit courses and courses dropped after the change period. Students in this category must pay a $50 fee for the cost of constructing, administering, and grading the examination. Since this cost has already been incurred, students who refuse the credit hours and grade are charged the $50 fee nevertheless. Full-time students with a tuition load exceeding 18 hours and students taking fewer than 12 hours pay tuition at the regular rate, per credit hour, with no additional fee.

Independent Study

Students must obtain permission to enroll in Independent Study from the instructor of their choice prior to registration. Independent Study authorization forms are available at blair.vanderbilt.edu/academics. The instructor's signature on the authorization form indicates a willingness to supervise the Independent Study project. A contract or study plan, approved by the instructor in consultation with the appropriate department chair and the associate dean, must be submitted to the Blair Office of Academic Services by the tenth calendar day after classes begin. If no plan is submitted, the student will be dropped from Independent Study. An Independent Study project should result in a substantial written report, paper, or lecture/recital. The report, recording, or some physical manifestation of the project should be retained by the instructor. Independent Study projects proposed by students for cross-school registration should be approved through the mechanisms of both schools. Consult associate deans from both schools for guidance.

A student may register for a maximum of 3 hours in Independent Study in a semester. A student may count a total of 6 hours in Independent Study toward the degree. A faculty member may supervise no more than four students per semester in Independent Study projects.

Independent Study cannot substitute for courses which are part of the curriculum.

Internships

The Career Center assists students interested in internship opportunities in the music industry and elsewhere; there are opportunities in many states of the U.S. and also abroad, both during the academic year and in the summer. A student serving as an intern may register for MENT 3880, 3881, or 3882 as a corollary if credit is desired. Students with summer internships that require an academic component must register for credit (vanderbilt.edu/career/career-exploration/internships/summer-internship-subsidy/). A maximum of 6 hours of internship credit may be counted toward the degree. Students are responsible for finding a faculty sponsor; a written study plan must be approved by the faculty sponsor and the Blair associate dean no later than the tenth day of classes. Internship paperwork is available on the Blair School website at blair.vanderbilt.edu/academics.

Performance Instruction: B.Mus. and B.Mus.Arts Degrees

Fees. Performance instruction fees are waived for B.Mus. and B.Mus.Arts students. A one-time music technology fee is charged to each first-year student.

Elective credit. B.Mus. and B.Mus.Arts students taking a second instrument normally enroll in 1100-level performance instruction for 1 or 2 hours elective credit. Consent of the instructor is required. B.Mus. and B.Mus.Arts students who have declared a minor instrument also register for performance instruction at the 1100 level; consent of the instructor and notification of the Blair Office of Academic Services are required.

Composition Majors. Students register for performance instruction at the 1100 level. A minimum of 6 semesters of study totaling 6 credit hours is required.

Integrated Studies Majors, Integrated Studies/Teacher Education Majors, Jazz Studies Majors, and B.Mus.Arts students. First-year students and sophomores register for 2100-level performance instruction in their primary area. Juniors and seniors register for 4100-level performance instruction in their primary area. A minimum of 8 semesters totaling 16 credit hours required; performance instruction required every semester in residence.

Performance Majors. First-year students and sophomores register for 2200-level performance instruction in their primary area. Juniors and seniors register for 4200-level instruction in their primary area. A minimum of 8 semesters totaling 32 hours (instrumental performance majors) or 28 hours (vocal performance majors) required; performance instruction required every semester in residence.

Upper Divisional Hearing (Performance Majors Only)

Requirements for performance majors include an upper divisional hearing in the sophomore year to determine continuance in the performance degree program and permit subsequent enrollment in upper division study at the 4200 level. Students are required to perform a program of twenty to thirty minutes for a faculty committee convened by the studio instructor or by the department chair. The committee will normally consist of the student's studio teacher and at least two additional members of the department. Memorization is required as appropriate, and where called for, collaboration with piano is expected.

The student must consult with the studio instructor regarding appropriate repertoire. Instrumental selections must be chosen from the solo repertoire and should represent diverse historical periods. Percussionists must perform on keyboard percussion, timpani, and snare drum and/or multiple percussion. String repertoire must include solo Bach. Pianists must perform a 30-minute memorized program of solo piano literature representing at least three style periods. Vocal repertoire must include a minimum of five songs of contrasting periods and styles, using three languages (Italian, English, and either French or German).

Failure to pass this hearing demonstrates a lack of the requisite skills to graduate in performance at the Blair School, necessitating transfer to another degree program. A student may petition the faculty once for a second hearing,

with entirely different repertoire, to take place before the end of the first semester of the junior year.

Solo Recitals

Pre-Recital Hearing

All students (excepting composition) giving required recitals and any student who wishes to give a recital in the Blair building must pass a hearing, held at least three weeks before the recital. After establishing a recital date, the student, with guidance from the studio instructor, will assemble a recital hearing committee, consisting of two additional faculty members, one of whom must be from outside the student's performing area. For integrated studies/teacher education students, the committee will normally consist of the studio instructor, a teacher education faculty member, and at least one additional faculty member. For non-required, non-credit recitals, the hearing committee may be from within the department. For any recital involving a student's second performing medium, the student must seek approval from the studio instructor and area coordinator of the secondary and primary performing areas; in addition, a full-time faculty member from the secondary performing area must be part of the hearing committee. The student must notify the recital hearing committee, in writing, of the hearing date, recital date, time, and place. Senior composition recitals are screened in advance at the department level.

For a required junior or senior recital, the repertoire will normally encompass three major style periods, as appropriate to the medium; at least one work in a contemporary idiom will be included in either the junior or senior recital. For teacher education students, a conducting component must be included on the required senior recital. For jazz studies students, an original composition or arrangement must be included on the required senior recital. A required senior recital must also include written or spoken program notes, visual media, or other audience engagement component, with the approval of the studio instructor. The hearing committee should hear all of the recital repertoire. Grading of the hearing is on a Pass/Fail basis, with written faculty comments. If a student fails the hearing, another must be scheduled. Only two recital hearings in one semester are permitted.

For students also choosing the senior recital to fulfill Immersion Vanderbilt, the recital program and audience engagement component should be a deeper, more intensive project that integrates classroom knowledge with experience. The student will work with the project's primary Immersion adviser (usually the studio teacher) to develop a plan relevant to the student's recital. While there are no specific requirements, examples may be found in the Blair Student Handbook. The student's Immersion adviser will ultimately decide if the plan fulfills the Immersion Vanderbilt project.

Recital and Recital Committee

For recitals given for credit, the recital committee is the same as the hearing committee whenever possible. The final grade is a composite of those of at least two committee members, including the studio instructor, with the studio instructor's grade valued at two thirds of the total. Copies of committee member's grades are kept by the instructor. Recitals not given for credit are not graded; they involve a hearing committee but not a recital committee.

Extracurricular Performance

Students must be in good standing and have the consent of their private instructors in order to participate in any extracurricular performance activities, including in-school collaboration, that are not required by a student's degree program or honor scholarship.

Recital Attendance

Each semester in residence, students (except graduating seniors in their penultimate or final semester) are required to register for MUSO 1000 and attend weekly student recitals/convocations and a minimum of six Blair faculty or professional concerts or their community equivalents as described on the syllabus. Students must fulfill both aspects

of the requirement to pass each semester. The course receives zero credit hours but is graded on a Pass/Fail basis and listed on students' transcripts. A temporary final grade will not be granted except in the case of documented medical emergency.

Students must register their attendance at each recital. Two absences from Friday afternoon recitals are permitted each semester. Under extraordinary circumstances, make-up assignments can be obtained from the recital attendance coordinator with the permission of the associate dean. Students must plan and keep up with their concert attendance. Except for weekly student recitals, performances in which students are participants do not fulfill the attendance requirement for the performer. Deadline for completion of all work is listed on the course syllabus for MUSO 1000. The first failure would result in the loss of the senior penultimate or final semester exemption. Additional failure(s) would require students to enroll for additional semester(s) until the seven required semesters are passed.

Change of Address

Any change of address should be submitted to the Office of the University Registrar at yes.vanderbilt.edu. The university will consider notices or other information delivered if mailed to the address currently on file.

Leave of Absence

A student in good standing may, with the approval of the associate dean, take leave of absence for one or two semesters. Application forms, available from the Blair Office of Academic Services, must be submitted by 1 December for spring semester leave or by 1 May for fall semester.

Students planning to study elsewhere while on leave (elective courses) must have prior approval if credits are to be transferable. Upon the student's return, a performance examination during the first two weeks of the semester may be needed to determine the student's standing in the major performance area.

Registration notifications are emailed to students on leave. A student failing to register at the conclusion of the stated leave will be withdrawn from the university and must apply for readmission.

Students who have been on leave of absence and not enrolled for three or more semesters or who leave the university while on academic probation must re-audition and achieve the approval of the associate dean prior to readmission.

Withdrawal from the University

Students proposing to withdraw from the university during any semester must report to the Blair associate dean to initiate proper clearance procedures. Students are graded on the same basis as if withdrawing from a course.

Students who withdraw before the end of the eighth week of classes receive a partial refund of tuition (see the chapter on Financial Information). Students intending to withdraw from the university for the following semester should notify the Blair Office of Academic Services by 1 December for spring semester or by 1 May for the fall semester.

Students who have withdrawn from the university without filing a Leave of Absence form must apply for readmission if they wish to return.

Honors in the Blair School of Music

Founder’s Medal

The Founder’s Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the Dean after consideration of faculty recommendations as well as grade point averages of the year’s highest-ranking graduates.

Academic Honors Designation

Honors, which are noted on diplomas and published in the *Commencement Program,* are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years’ graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years’ graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years’ graduating seniors.

Honors Program in Musicology and Ethnomusicology

The honors program in musicology and ethnomusicology is designed to afford superior students the opportunity to pursue more intensive work within the field of musicology or ethnomusicology, culminating in the preparation of a senior honors thesis. The course of study includes seminar work as well as independent study and writing under the supervision of a thesis adviser. Students who want to do honors work should contact the chair of the musicology and ethnomusicology department in the fall of their junior year. Departmental approval of a formal honors thesis prospectus must take place prior to registration for MUSL 4998 in spring of the junior year or fall of the senior year. Minimum requirements are a 3.0 GPA overall and 3.3 in musicology and ethnomusicology courses.

Students accepted into the program must take a total of 9 credit hours: MUSL 4998–4999, Senior Honors Thesis (6 hours), and one course (beyond the MUSL core) chosen from MUSL 2610, 3160, 3220-3240, or 3890 (3 hours). In addition, successful completion of the honors program requires an oral defense of the honors thesis before a faculty committee. This defense will occur at the end of the second semester of thesis enrollment. Those enrolled in the program who successfully complete its requirements with distinction may graduate with Honors or Highest Honors in musicology and ethnomusicology.

Dean’s List

The Dean’s List recognizes outstanding academic performance in a semester. Students are named to the Dean’s List when they earn a grade point average of at least 3.500 while carrying 12 or more graded hours, with no temporary or missing grades in any course (credit or non-credit), and no grade of *F*.

Pi Kappa Lambda

Election to Pi Kappa Lambda National Music Honor Society signifies superior accomplishment in the field of music. Students elected to membership must be outstanding musically and scholastically and ranked in the highest 20 percent of the senior class or the highest 10 percent of the junior class. The Eta Iota chapter was installed at Vanderbilt on April 8, 1992. Professor Karen Ann Krieger serves as its president.

Awards and Prizes

Several awards are presented to students at the Blair School of Music. Announcement is made at the final student recital/convocation of the spring semester. Each carries a monetary stipend. Awards, which are published in the *Commencement Program,* are as follows:

ACHIEVEMENT IN TEACHING AWARD. The Achievement in Teaching Award is presented by the faculty to a senior who has demonstrated superior abilities in teaching. The recipient must intend to teach music professionally in an independent studio or a classroom, or at the collegiate level.

ANDREW SANG HAN MEMORIAL AWARD. Established in memory of Sang Han, a clarinet performance major at Blair from 2012 to 2015. Sang's dedication to excellence in all areas of performance, from small chamber ensembles to wind symphony and orchestra, as well as the care and consideration he showed his peers, served as an example to his friends and colleagues at the Blair School. Presented to a woodwind or brass student who demonstrates remarkable musicianship and leadership in all areas of ensemble playing.

THE BLAIR VOLUNTEER SERVICE THROUGH MUSIC AWARD. Established in 2009, the award recognizes a student who, using music in service to others, has performed with extraordinary effort and distinction, particularly at the W. O. Smith Community Music School.

CHRISTIAN TEAL AWARD. This award recognizes a current string student who embodies the collaborative spirit of Professor Chris Teal, who retired in 2015 as Joseph Joachim Professor of Violin after forty-two years at the Blair School.

DAVID RABIN PRIZE. Established in memory of David Rabin, M.D., a professor of medicine and professor of obstetrics and gynecology at Vanderbilt from 1975 to 1984, and awarded for excellence in musical performance to a student enrolled at the Blair School of Music.

ELLIOT AND AILSA NEWMAN PRIZE. Endowed by Mrs. Ailsa Mackay Newman, in memory of her husband, Elliott Voss Newman, M.D., and his love of the clarinet. Dr. Newman was the Werthan Professor of Experimental Medicine at Vanderbilt from 1952 until his death in 1973. This prize is awarded to a promising clarinet or woodwind student for excellence in performance.

EXCELLENCE IN PIANO PERFORMANCE AWARD. This award is given by Blair faculty member Amy Kane Jarman in memory of her mother, June Kane, a 1947 piano performance graduate of the University of Colorado Boulder, and lifelong musician.

JEAN KELLER HEARD PRIZE. Established in honor of violinist Jean Keller Heard and awarded for excellence in musical performance to a string student or students seeking the bachelor of music at the Blair School of Music.

JULIUS AND MAGDA LACHS AWARD. Funded by Vanderbilt's Centennial Professor of Philosophy, John Lachs, in memory of his mother, Magda, a passionate opera enthusiast, and his father, Julius Lachs. It is given to an

outstanding voice or orchestra student who participated in the current year’s Vanderbilt Opera Theatre production.

L. HOWARD “ZEKE” NICAR AWARD. Established in memory of L. Howard “Zeke” Nicar, the Blair School of Music’s first assistant dean for admissions. This award is presented to an outstanding student, for excellence in performance, as selected by the woodwind or brass faculty.

MARGARET BRANSCOMB PRIZE. Established in memory of Margaret Branscomb, wife of Vanderbilt Chancellor Emeritus Harvie Branscomb, and presented to a first-year student judged by the faculty to have the personal and musical qualities which best exemplify the spirit and standards of Blair.

MARK WAIT AWARD. Awarded for academic excellence and exemplary citizenship to a Blair senior with a second major outside of music. The Wait Award was created by an anonymous donor in honor of Mark Wait’s tenure as dean of the Blair School.

MARTIN WILLIAMS AWARD. Established in memory of Martin Williams, former director of the Smithsonian Institution’s Jazz Program and an adjunct professor of jazz history at Blair. This award is presented to the student writing the most outstanding class paper during the academic year.

MICHELSON AWARD IN COLLABORATIVE ARTS. Established in honor of Laura Michelson, BMus’11, this award is presented to a singer, pianist, or voice/piano duo for exceptional performance in collaborative arts.

PRESSER AWARD. Established in memory of Theodore Presser, music publisher and philanthropist, and awarded to a rising senior judged by the Blair School of Music faculty to exemplify excellence both musically and academically.

RICHARD C. COOPER AWARD. This award is presented by the Pi Delta Chapter of Phi Mu Alpha to remember the outstanding contributions made by Chris Cooper to the student experience of music at Vanderbilt University.

SPIRIT OF BILLY ADAIR AWARD. The Spirit of Billy Adair award is given to a sophomore or junior who exhibits the qualities of leadership, mentorship, excellence, musicianship, and service within the jazz program at Blair.

STUDENT CITIZEN AWARD. The Student Citizen Award is given to the sophomore or junior judged by the entire faculty to have the musical and personal qualities that best exemplify the spirit and standards of the school, especially by sharing their talent and training in music as a service to others.The award is established by Madeline Myers, B.Mus.’11, in memory of
her father, James Agnew Myers.

SUE BREWER AWARD. Established in memory of Sue Brewer by the Songwriters Guild Foundation and awarded for excellence to a student majoring in composition.

UNDERGRADUATE COMPOSITION AWARD. The Undergraduate Composition Award is awarded by the composition faculty to a student of junior or senior status who has made an outstanding contribution to the Blair School’s composition program through creative output, academic excellence, and personal dedication. Given in honor of Sean William Calhoun, BMus’14.

Blair School of Music Courses

COMP Composition
JAZZ Jazz Studies
MCON Conducting
MENT Arts Advocacy, Career Development, and Entrepreneurship
MPED Pedagogy
MREP Orchestral Repertoire and Instrument Literature
MUED Music Education
MUKH Keyboard Harmony
MUSC Musicianship
MUSE Ensembles
MUSL Musicology/Ethnomusicology
MUSO Other Music Courses
MUTH Music Theory
MWEL Musicians' Wellness

Group Performance, Performance Classes and Individual Performance Instruction
BRQ Baroque
BNJO Banjo
BASS Bass
BSSN Bassoon
CLLO Cello
CLAR Clarinet
DRUM Drumset
EUPH Euphonium
FDDL Fiddle
FLUT Flute
GTR Guitar
HARP Harp
HRPS Harpsichord
HORN Horn
MNDL Mandolin
OBOE Oboe
ORGN Organ
PERC Percussion
PIAN Piano
SAX Saxophone
STPN Steel Pan
TROM Trombone
TRPT Trumpet
TUBA Tuba
VLA Viola
VLN Violin
VOIC Voice

School of Engineering

School of Engineering Administration and Faculty

KRISHNENDU ROY, Ph.D., Bruce and Bridgitt Evans Dean of Engineering
DOUGLAS E. ADAMS, Ph.D., Vice Dean of Engineering

DUCO JANSEN, Ph.D., Senior Associate Dean for Graduate Education and Faculty Affairs

CYNTHIA B. PASCHAL, Ph.D., Senior Associate Dean for Undergraduate Education

CYNTHIA A. REINHART-KING. Ph.D., Senior Associate Dean for Research

JULIANNE VERNON, Ph.D., Associate Dean for Academic Success

JULES WHITE, Ph.D., Associate Dean for Strategic Learning Programs

ALISON WILLIAMS, M.S., Interim Chief Business Officer

ADAM MCKEEVER-BURGETT, M.Div., Assistant Dean for Academic Services

THOMAS J. WITHROW, Ph.D., Assistant Dean for Design

EMILY ARIZAGA, M.Ed., Academic and Educational Support Coordinator

MADDIE FRENCH, M.A, Senior Academic Counselor

ALLISON GOMES, M.A., Academic Counselor

Named and Distinguished Professorships

MARK D. ABKOWITZ, Distinguished Professor of Civil and Environmental Engineering

DOUGLAS E. ADAMS, Distinguished Professor of Civil and Environmental Engineering; Daniel F. Flowers Professor

GAUTAM BISWAS, Cornelius Vanderbilt Professor of Engineering

JAMES A. CADZOW, Centennial Professor of Electrical Engineering, Emeritus

THOMAS A. CRUSE, H. Fort Flowers Professor of Mechanical Engineering, Emeritus

PETER T. CUMMINGS, John R. Hall Professor of Chemical Engineering, Emeritus

BENOIT M. DAWANT, Cornelius Vanderbilt Professor in Engineering

CRAIG L. DUVALL, Cornelius Vanderbilt Professor of Engineering

PHILIPPE M. FAUCHET, Distinguished Professor of Electrical and Computer Engineering; Bruce and Bridgitt Evans Dean's Chair in Engineering, Emeritus

DANIEL M. FLEETWOOD, Olin H. Landreth Professor of Engineering

KENNETH F. GALLOWAY, Distinguished Professor of Engineering, Emeritus

MICHAEL GOLDFARB, H. Fort Flowers Professor of Mechanical Engineering

JOHN C. GORE, Chancellor’s University Professor of Radiology and Radiological Sciences and Biomedical Engineering

THOMAS R. HARRIS, Orrin Henry Ingram Distinguished Professor of Engineering, Emeritus

GEORGE M. HORNBERGER, Distinguished University Professor, Emeritus; Craig E. Philip Professor of Engineering, Emeritus

ROBERT W. HOUSE, Orrin Henry Ingram Distinguished Professor of Engineering Management, Emeritus

DAVID S. KOSSON, Distinguished Professor of Civil and Environmental Engineering; Gass Family Chair in Energy and

the Environment

MICHAEL R. KING, J. Lawrence Wilson Professor of Engineering

M. DOUGLAS LEVAN, J. Lawrence Wilson Professor of Engineering, Emeritus

SANKARAN MAHADEVAN, John R. Murray Sr. Professor in Engineering

ANITA MAHADEVAN-JANSEN, Orrin H. Ingram Professor in Biomedical Engineering

W. DAVID MERRYMAN, Walters Family Professor

MICHAEL I. MIGA, Harvie Branscomb Professor

CAGLAR OSKAY, Cornelius Vanderbilt Professor of Engineering

SOKRATES T. PANTELIDES, University Distinguished Professor of Physics and Engineering

PETER N. PINTAURO, H. Eugene McBrayer Professor of Chemical Engineering, Emeritus

CYNTHIA A. REINHART-KING, Cornelius Vanderbilt Professor of Engineering

KRISHNENDU ROY, Bruce and Bridgitt Evans Dean of Engineering; Distinguished Professor of Biomedical Engineering

NILANJAN SARKAR, David K. Wilson Professor of Engineering

DOUGLAS C. SCHMIDT, Cornelius Vanderbilt Professor of Engineering

RONALD D. SCHRIMPF, Orrin Henry Ingram Professor of Engineering

RICHARD E. SPEECE, Centennial Professor of Civil and Environmental Engineering, Emeritus

JANOS SZTIPANOVITS, E. Bronson Ingram Distinguished Professor of Engineering

TAYLOR G. WANG, Centennial Professor of Materials Science and Engineering, Emeritus; Centennial Professor of Mechanical Engineering, Emeritus

ROBERT J. WEBSTER III, Richard A. Schroeder Professor in Mechanical Engineering

SHARON M. WEISS, Cornelius Vanderbilt Professor of Engineering

JOHN P. WIKSWO, JR., Gordon A. Cain University Professor; A. B. Learned Professor of Living State Physics

JAMEY D. YOUNG, Cornelius Vanderbilt Professor of Engineering

Department Chairs and Division Director

MICHAEL R. KING, Biomedical Engineering

PAUL E. LAIBINIS, Chemical and Biomolecular Engineering

CAGLAR OSKAY, Civil and Environmental Engineering

XENOFON KOUTSOUKOS, Computer Science

BENNETT A. LANDMAN, Electrical and Computer Engineering

YIORGOS KOSTOULAS, General Engineering

NILANJAN SARKAR, Mechanical Engineering

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

Engineering Education in a University Setting

Vanderbilt University School of Engineering is the largest and oldest private engineering school in the South. Classes offering engineering instruction began in 1879, and seven years later Engineering was made a separate unit with its own dean. The school's program emphasizes the relationship of the engineering profession to society and prepares engineers to be socially aware as well as technically competent.

The mission of the School of Engineering is threefold: to produce intellectual leaders, entrepreneurs, and innovators by recruiting the best students and providing them a top-notch education; to deliver scholarship of the highest caliber, published in the most visible venues, addressing important societal problems; and to be a leader in entrepreneurship and innovation, in Tennessee, the U.S., and globally.

The school strives to meet the undergraduate education portion of its mission by offering degree programs in fields of engineering relevant to the needs of society. An objective of these programs is to provide a technical education integrated with strong humanities, fine arts, and social sciences subject matter to provide the requisite foundation for lifelong learning. The availability of second majors and minors in subject areas in other schools and colleges of the university increases opportunities for engineering students to enhance their education by pursuing studies in the non-technical disciplines. Engineering students take close to 50 percent of their courses outside of the School of Engineering and associate daily with peers from other schools and colleges within the university.

Another objective is to prepare students who intend to enter engineering practice upon graduation and those who will continue their studies at the graduate level in engineering or in other professional fields. To this end, our programs emphasize mathematics and engineering sciences with significant exposure to engineering design and hands-on laboratory experiences.

A large fraction of the student body is destined for management positions early in their working careers. To meet these students' needs, the Engineering Management program offers a well-integrated minor.

Students at all levels have the opportunity to work with faculty in the generation of new knowledge. Those planning for graduate studies and research are especially encouraged to participate in individual topics and research courses to fulfill that desire. Engineering students also participate in the university's Summer Research Program for Undergraduates.

Facilities

The School of Engineering is housed in five main buildings with several satellite facilities. William W. Featheringill Hall houses a three-story atrium designed for student interaction and social events, more than fifty teaching and research laboratories with the latest equipment and computer resources, and project rooms. The Engineering and Science Building is an eight-story state-of-the-art building that houses the Wond'ry at the Innovation Pavilion, the Frist Center for Autism and Innovation, numerous research labs, interactive classrooms, clean rooms, and space for students to work, study, and socialize. Olin Hall, which is attached to the Engineering and Science building, houses Chemical and Biomolecular Engineering, Mechanical Engineering, and Materials Science, several classrooms, and research and teaching laboratories. School administrative offices and several classrooms are located on the ground floor of the Science and Engineering Building in Stevenson Center, which also houses the Biomedical Engineering department on the 8th and 9th floors. Jacobs Hall, which flanks Featheringill Hall, contains laboratories, offices, and classrooms serving the Civil and Environmental Engineering, and Electrical and Computer Engineering departments. Labs, offices, and meeting spaces for Computer Science are also housed at 17th & Horton, a building that serves as

a hub for Computer Science and Data Science. Several satellite facilities are also part of the Engineering School: the W. M. Keck Free-Electron Laser Center building, housing the labs and offices of the Biomedical Photonics Center; the Laboratory for Systems Integrity and Reliability (LASIR), an off-campus hangar-style facility dedicated to scaling up experiments to realistic and full size that houses a wind tunnel and military aircraft; the Vanderbilt Institute of Software Integrated Systems; and the Institute for Space and Defense Electronics.

In all its engineering programs, Vanderbilt recognizes the vital place of experimental and research laboratories in the learning experience. Laboratories are designed to provide the strongest personal contact between students and faculty members consistent with enrollment.

Well-equipped undergraduate laboratories are maintained by the Chemistry and Physics & Astronomy departments in the College of Arts and Science, which offers mathematics and basic science courses required of all engineering students. Graduate and undergraduate divisions of these departments maintain teaching and research facilities in the Stevenson Center for the Natural Sciences. Another supporting department, Biological Sciences, is housed in Medical Research Building III. Most classes in humanities and the social sciences are conducted in Buttrick, Calhoun, Furman, Garland, and Wilson halls.

Accreditation

All programs leading to the Bachelor of Engineering degree and the program leading to the Bachelor of Science in computer science are accredited as follows:

The Bachelor of Engineering degree program in biomedical engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Bioengineering and Biomedical and Similarly Named Engineering Programs.

The Bachelor of Engineering degree program in civil engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Civil and Similarly Named Engineering Programs.

The Bachelor of Engineering degree program in chemical engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Chemical, Biochemical, Biomolecular and Similarly Named Engineering Programs.

The Bachelor of Science program in computer science is accredited by the Computing Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and Program Criteria for Computer Science and Similarly Named Computing Programs. The accredited program in computer science is the primary major administered by the School of Engineering. Computer science added as a second major by students outside the School of Engineering is not an accredited program.

The Bachelor of Engineering degree program in electrical and computer engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The Bachelor of Engineering degree program in mechanical engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Mechanical and Similarly Named Engineering Programs.

Employment of Graduates

Of the recent Vanderbilt graduates with baccalaureate degrees in engineering, about 75 percent entered directly into professional practice. Twenty-five percent continued with graduate or professional education. Others pursued diverse careers or other interests. Additional information regarding the employment of engineering graduates is available on the School of Engineering's website and in the VU Career Center.

Supporting Organizations

Vanderbilt Engineering Council

The Engineering Council is a student organization whose main goal is facilitating communication between administration, faculty, and students in the School of Engineering in addition to organizing activities in support of students in the school. Officers of the Engineering Council are elected by the engineering student body, and representatives from the professional societies complete the organization’s membership. While the council has no administrative power, it provides students with a voice in the decision- making process in the School of Engineering.

Professional Societies

The leading national engineering societies have chartered branches or student sections at Vanderbilt. These organizations are run locally by students with the help of a faculty adviser. Meetings are devoted to matters of a technical nature, including outside speakers, plant trips, and other subjects of interest to the membership.

Students are invited to attend meetings and join as they will find the work of the professional societies beneficial in orienting them in their careers.

The student professional societies are:

American Institute of Chemical Engineers (AICh.E)	National Society of Black Engineers (N.S.B.E.)
American Nuclear Society (ANS)	Society of Hispanic Professional Engineers (S.H.P.E.)
American Society of Civil Engineers (A.S.C.E.)	Society of Women Engineers (S.W.E.)
American Society of Mechanical Engineers (A.S.M.E)	Women in Computing
Biomedical Engineering Society	Women in Science and Engineering

Graduating seniors may join the Order of the Engineer, a society that recognizes the commitment of its members to the profession of engineering.

Degree Programs in Engineering

Bachelor of engineering degree programs are offered in the areas of biomedical, chemical, civil, electrical and computer, and mechanical engineering. Many of these programs allow considerable flexibility—but students are required to include in their courses of study those bodies of knowledge fundamental to that discipline.

Bachelor of science degree programs are offered in computer science and engineering science. The latter interdisciplinary engineering discipline allows strong concentration in other areas of engineering or outside of the School of Engineering.

The school offers the master of engineering (M.Eng.), with emphasis on engineering design and practice, in most areas of study. The Graduate School, through departments of the School of Engineering, offers the research-oriented Ph.D. and M.S. degrees in eight major fields. Degree programs offered by the School of Engineering are shown below.

Degree Programs in Engineering

	B.E.	B.S.	M.Eng.	M.S.	Ph.D.
Biomedical Engineering	•		•	•	•
Chemical Engineering	•		•	•	•
Civil Engineering	•		•	•	•
Computer Engineering*	•				
Computer Science		•		•	•
Cyber-Physical Systems			•		
Electrical and Computer Engineering	•			•	•
Engineering in Surgery and Intervention			•		
Engineering Management			•		
Engineering Science		•			
Environmental Engineering			•	•	•
Interdisciplinary Materials Science				•	•
Mechanical Engineering	•		•	•	•
Risk, Reliability, and Resilience Engineering			•		

*Students interested in computer engineering should choose the major in Electrical and Computer Engineering. The major in Computer Engineering is closed to new enrollments.

Undergraduate Degrees

Bachelor of Engineering

The bachelor of engineering is offered in biomedical, chemical, civil, electrical and computer, and mechanical engineering. The B.E. degree requirements vary from 121 to 127 semester hours. Students seeking double majors will require somewhat more credit hours.

Bachelor of Science

The bachelor of science is offered in computer science and engineering science, requiring 120 and 121 semester

hours, respectively. These programs have more flexibility in elective choice than the B.E. degree programs.

The First Year

Most courses normally scheduled for the first year are common to both the B.E. and B.S. degree programs. While the curriculum for the first year is generally the same for all students, there are important variations. For example, some major programs require a full year of introductory chemistry; others do not. Students should become familiar with requirements of those programs in which they have an interest and confer with their adviser at the time of enrollment and throughout the first year to plan a program of study that will keep options open as long as possible.

Specimen curricula for the engineering programs are given in the Courses of Study section. Requirements for the B.E. and B.S. degrees for the various programs vary in the minimum amount of hours and in specific course requirements in the basic sciences and in mathematics.

Included in the first year for all majors is the course Engineering Science 1401–1403 (Introduction to Engineering), which introduces the student to design tools used in all areas of engineering.

Some students may qualify for advanced placement or advanced credit in mathematics, science, the humanities and social sciences, or computer science. If advanced credit is awarded, it will not affect the student’s Vanderbilt grade point average.

Mathematics and Physics

Entering engineering students will be placed in the appropriate level mathematics course. Students having one full year or more of high school credit in analytic geometry and calculus may qualify for advanced placement in a regular sequence by scoring well on the Advanced Placement Examination.

Students with high mathematical ability and achievement may apply for enrollment in the Math 2500-2501 sequence as a substitute for Math 2300. For more information, see the course descriptions under Mathematics in the Arts and Science section of this catalog. For majors requiring Math 2420 (Methods of Ordinary Differential Equations), students may select Math 2400 (Differential Equations with Linear Algebra) or Math 2610 (Ordinary Differential Equations) as a substitute.

Students with inadequate backgrounds in mathematics may be required to take Math 1005 (Pre-calculus Mathematics). Taking this course constitutes an additional requirement for graduation.

Math 1010-1011 (Probability and Statistical Inference) and Math 1100 (Survey of Calculus) cannot be credited toward a degree in the School of Engineering.

Students with greater interest in physics may enroll in Phys 1911, 1912, 1912L, and 2255L (Principles of Physics I and II and labs) as substitutes for Phys 1601, 1602, 1601L, and 1602L (General Physics I and II and labs), respectively. Students should consult with their Academic Adviser before taking this more advanced Physics sequence.

Pre-calculus courses Phys 1010, 1010L, 2051, 2052, 2053, and 2054 cannot be credited toward a degree in the School of Engineering.

Liberal Arts Core

In order to provide the elements of a general education considered necessary for responsible practice as an educated engineer, the School of Engineering requires each student to complete at least 18 hours in the Liberal Arts Core comprising:

1. At least 3 hours selected from courses classified in the AXLE Curriculum Course Distribution as Humanities and Creative Arts (HCA), with the exception of CMST 1500, 2100, 2110, and 2120, and
2. At least 3 hours selected from courses classified in the AXLE Curriculum Course Distribution as Social and Behavioral Sciences (SBS).

The remaining hours are to be selected from:

1. Courses classified in the AXLE Curriculum Course Distribution as Humanities and Creative Arts (HCA), International Cultures (INT), History and Culture of the United States (US), Social and Behavioral Sciences (SBS), and Perspectives (P)
2. CS 1151 and ENGM 2440
3. ARA, CHEB, CHIN, FREN, GER, GRK, HEBR, HNUR, ITA, JAPN, KICH, KOR, LAT, RUSS, SNSK, and SPAN courses numbered 1101; CHIN and JAPN courses numbered 1011 and 1012; and ENGL and SPAN courses numbered 1100
4. Peabody College courses in Psychology and Human Development numbered 1205, 1207, 1250, 2200, 2250, 2300, 2400, 2500, 2550, 2600, and 3150, and in Human and Organizational Development numbered 1250, 1300, 2100, 2260, 2400, 2500, 2700, and 3232
5. All MUSO, COMP, MREP, MUTH, and performance courses in the Blair School of Music, except MUSO 1001

Open Electives

Courses taken beyond specified courses and restricted (such as program, technical, and liberal arts) electives for the major may be taken as open electives.

Officer Education

Course offerings in military science and naval science are described in the section on Special Programs for Undergraduates near the front of the catalog. All officer education courses designated as eligible for credit may be taken as open electives. In addition, officer education courses in history and political science that carry AXLE designations may be taken as part of the Liberal Arts Core. AFROTC students may count 6 hours of the military courses as open electives.

Master of Engineering

The master of engineering (M.Eng.) is an advanced professional degree awarded by the School of Engineering and especially designed for engineering practitioners who may prefer to work while doing professional study. It is also suitable for individuals who apply directly from undergraduate school—but the thrust of the program is toward professional practice in engineering rather than research or teaching. The degree is offered in biomedical engineering, chemical engineering, civil engineering, cyber-physical systems, engineering in surgery and intervention, engineering management, environmental engineering, mechanical engineering, and risk, reliability, and resilience engineering.

Students must complete 30 hours of approved course work. A maximum of 6 hours of graduate-level course work may be transferred from another institution, and a maximum period of seven years is allowed to complete the degree. An extensive, written design report shall be submitted on a project approved by the student’s project adviser.

Admission to the Master of Engineering program normally requires graduation from an approved undergraduate program in engineering or a related scientific discipline, attainment of a B average in undergraduate courses applicable to the student’s career goals, and recommendations containing favorable appraisals of professional

promise and attitude. A period of successful work experience prior to application to the program will also be given consideration. For information about admissions, application procedures, and application deadlines for the Master of Engineering programs, please visit engineering.vanderbilt.edu/gradschool.

For international students who did not graduate from an institution in a country where English is the official language, proficiency in English must be shown by a minimum score of 89 on the TOEFL or 7 on the IELTS test.

Digital Learning Programs

The School of Engineering offers two degree programs online: an M.S. in Computer Science, and an M.Eng. in Engineering Management. Courses in these digital learning programs are only available to students enrolled in these online degree programs. For information about admissions, application procedures, and application deadlines for the School of Engineering Digital Learning programs, please visit the website engineeringonline.vanderbilt.edu.

Special Programs in the School of Engineering

Honors Programs

Study Abroad

Teacher Education

Second Major

Minors

Dual Degree Program with Fisk University

Integrated Bachelor and Master of Engineering

Accelerated Graduate Program in Engineering

Honors Programs

Honors programs allow selected undergraduate students to develop individually through independent study and research. Individual honors programs are described in the Courses of Study section.

Requirements vary somewhat but, in general, to qualify for consideration a student should have (a) completed the technical course requirements of the first two years, (b) attained a minimum grade average of 3.5 in all work taken for credit, and (c) shown evidence indicating a capacity for independent study and/or research. Formal admission is by election of the department concerned. Once admitted, candidates remain in the program only if they maintain a 3.5 or higher grade average.

Accepted candidates normally begin honors study in the junior year, but exceptions may be made for outstanding seniors.

Successful candidates are awarded Honors in their area of interest. This designation appears on their diplomas.

Study Abroad

Vanderbilt's Global Education Office offers approximately thirty programs that allow students to take engineering or computer science courses in English abroad, in locations ranging from Dublin to Sydney, Madrid to Hong Kong. There are no language prerequisites for these programs. These programs also allow students to take a range of liberal arts core, major core, and elective courses abroad. In no case, after matriculating at Vanderbilt, may a student participate in a Vanderbilt-approved study abroad program through a different university or through an

external agency and then seek to transfer that credit into Vanderbilt. Financial aid can be used for study abroad during the academic year, and scholarships are available to support Vanderbilt-approved summer study abroad options. Students are encouraged to discuss with their academic advisers how best to incorporate study abroad into their four-year plans of study. All students who study abroad must register their travel in advance with Vanderbilt's international security provider.

Registration is completed on your behalf when enrolling in a program offered through the Global Education Office. Otherwise, information is available on the GlobalVU website: vanderbilt.edu/global.

Teacher Education

Students who are interested in preparing for licensure as secondary school teachers should plan their programs in consultation with the associate dean in the School of Engineering and the Director of Secondary Education in the Department of Teaching and Learning at Peabody College. More specific information on professional education course requirements can be found under the Licensure for Teaching chapter in the Peabody College section of this catalog. Inquiries can also be made to the Office of Teacher Licensure at Peabody.

Second Major

It is possible for a student to combine an engineering field with a second area outside the School of Engineering. The student must obtain prior approval of each department and satisfy the requirements of each major, including the requirement regarding minimum grade point average. Students in the School of Engineering may use courses outside the School of Engineering for relevant second majors even if those courses also fulfill a degree requirement.

Certain double majors involving two programs within the School of Engineering have been approved by the faculty. The approved double majors are biomedical engineering/electrical and computer engineering, and biomedical engineering/chemical engineering.

Both majors are indicated on the student's transcript. Only one degree is awarded, from the school in which the student is enrolled.

Minors

A minor consists of at least five courses of at least 3 credit hours each within a recognized area of knowledge. A minor offers students more than a casual introduction to an area, but less than a major. A minor is not a degree requirement, but students may elect to complete one or more. Courses may not be taken on a Pass/Fail basis. A minor for which all designated courses are completed with a grade point average of at least 2.0 will be entered on the transcript at the time of graduation.

When a minor is offered in a discipline that offers a major, only those courses that count toward the major may be counted toward the minor. Students should refer to the appropriate sections of this catalog for specific requirements. Minors are offered in engineering management, materials science and engineering, computer science, digital fabrication, electrical and computer engineering, energy and environmental systems, environmental engineering, nanoscience and nanotechnology, scientific computing, and most disciplines of the College of Arts and Science, Blair School of Music, and Peabody College.

Students should declare their intention to pursue minors by completing forms available in the Office of Academic Services of the School of Engineering. Departments and programs assign advisers to students who declare minors in their areas. Students are responsible for knowing and satisfying all requirements for the minors they intend to complete.

Dual Degree Program with Fisk University

A coordinated dual degree program between the Vanderbilt University School of Engineering and Fisk University is especially designed to permit students to obtain an A.B. degree in biology, chemistry, computer science, physics, or mathematics from Fisk and a B.E. degree in engineering from Vanderbilt, generally within five years.

For the first three years, the student is enrolled at Fisk in a science or mathematics curriculum and, by cross-registration in the second and third years, takes introductory engineering courses at Vanderbilt. During the fourth and fifth years, the student is enrolled at Vanderbilt, following principally an engineering curriculum at Vanderbilt and completing necessary courses at Fisk. At the end of five years, the student should be able to satisfy the requirements for both bachelor's degrees.

Financial aid is available for qualified, deserving students. Additional information is available from the director of transfer admissions in the Office of Undergraduate Admissions.

Integrated Bachelor and Master of Engineering

On the basis of recommendations containing favorable appraisals of professional promise, undergraduate students in the School of Engineering who have completed at least 75 hours by the end of the second year with at least a 3.000 grade point average may be accepted into an integrated Bachelor of Engineering–Master of Engineering program. This program is currently available in chemical, civil, environmental, and mechanical engineering. The last two years of a student's program are planned as a unit.

With the approval of the student's adviser, the director of graduate studies in the student's major department, and the senior associate dean for undergraduate education, students apply through the senior associate dean for graduate education for admission to this integrated dual degree program. Upon admission to this program, a second "career" will be set up for the student which will allow the student to start taking graduate courses (course numbers > 5000) during the junior and senior years. These courses will be credited toward the master of engineering. Note that no double counting of courses is allowed (i.e., the student must meet the degree requirements for each degree independent of the other degree). No more than 18 total credit hours between the two careers can be taken in a single semester. The student typically receives the bachelor's degree at the end of the fourth year and completes the master of engineering during the fifth year. Further information can be obtained from the director of graduate studies of the student's major department.

Accelerated Graduate Program in Engineering

Students who enter Vanderbilt with a significant number of credits, earned either through Advanced Placement tests or in college courses taken during high school, may be eligible for the Accelerated Graduate Program in Engineering. Through this program, a student is able to earn both a bachelor's degree and a master of science in about the same time required for the bachelor's degree or slightly longer. To be eligible for the program, a student must complete 86 hours (senior standing) by the end of the sophomore year with at least a 3.500 grade point average. With the approval of the student's adviser, the director of graduate studies in the student's major department, and the senior associate dean for undergraduate education, students apply through the senior associate dean for graduate education for admission to this accelerated dual degree program. Upon admission to this program, a second "career" will be set up for the student which will allow the student to start taking graduate courses (course numbers > 5000) during the junior and senior years. These courses will be credited toward the master of science.

Note that no double counting of courses is allowed (i.e., the student must meet the degree requirements for each degree independent of the other degree). No more than 18 total credit hours between the two careers can be taken in a single semester. The student receives the bachelor's degree at the end of the fourth year and typically spends the summer finishing a master's thesis to complete the master of science. Further information can be obtained from the director of graduate studies of the student's major department.

Honors in the School of Engineering

Founder's Medal

Latin Honors Designation

Dean's List

Honor Societies

Other Awards and Prizes

Founder's Medal

The Founder's Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the dean after consideration of faculty recommendations and the grade point averages of the year's summa cum laude graduates.

Latin Honors Designation

Honors noted on diplomas and published in the Commencement Program are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years' School of Engineering graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years' School of Engineering graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years' School of Engineering graduating seniors.

Dean's List

The Dean's List recognizes outstanding academic performance in a semester. Students are named to the Dean's List when they earn a grade point average of at least 3.500 while carrying 12 or more graded hours, with no temporary or missing grades in any course (credit or non-credit) and no grade of *F*.

Honor Societies

ALPHA ETA MU BETA, the National Biomedical Engineering Honor Society, was installed at Vanderbilt University in 1998 and re-established in 2019. AEMB was established in 1979 to recognize and encourage excellence in the field of biomedical engineering and bioengineering.

TAU BETA PI. The Tennessee Beta chapter of the Tau Beta Pi Association was installed at Vanderbilt University 7 December 1946. Members of Tau Beta Pi are selected from undergraduate students in the School of Engineering who have completed at least four semesters of required work, are in the upper eighth of their class scholastically, and have shown marked qualities of character and leadership; seniors in the upper fifth of their class scholastically are also eligible for election.

CHI EPSILON. The Vanderbilt chapter of Chi Epsilon, installed 18 March 1967, is restricted to undergraduate civil engineering students in the top third of their class. Election is based on grade point average, faculty recommendation, and exceptional achievements in extracurricular campus activities.

ETA KAPPA NU. The Epsilon Lambda chapter of the Eta Kappa Nu Association was established 22 April 1966. Undergraduate members are selected from the upper third of the class in electrical and computer engineering. Eta Kappa Nu recognizes leadership and scholastic accomplishment twice annually, selecting members also from the professional body of practicing engineers.

PI TAU SIGMA. The Delta Alpha chapter of Pi Tau Sigma was installed on the Vanderbilt campus 22 April 1971, for the purpose of recognizing scholastic achievement and professional promise in junior and senior mechanical engineering students. Students are elected to membership twice each year on the basis of academic excellence and recommendations from the faculty and chapter members.

SIGMA XI. The Vanderbilt chapter of the Society of the Sigma Xi recognizes accomplishment, devotion, and originality in scientific research. Associate members are elected annually from graduate-level students of the university.

HONOR SOCIETIES FOR FIRST-YEAR STUDENTS. First-year students who earn a grade point average of 3.5 or better for their first semester are eligible for membership in the Vanderbilt chapter of Phi Eta Sigma and Alpha Lambda Delta.

Other Awards and Prizes

DEAN'S AWARD FOR OUTSTANDING SERVICE. Awarded to the senior candidate in the School of Engineering who has shown remarkable leadership qualities and who has also made the greatest contribution in personal services to the School.

DEAN'S AWARD FOR OUTSTANDING SCHOLARSHIP. Awarded to each member of the senior class who graduates summa cum laude.

PROGRAM AWARDS. The faculty associated with each of the departments of the school annually bestows a certificate and a prize to one member of the graduating class who is judged to have made the greatest progress in professional development during his or her undergraduate career.

AMERICAN INSTITUTE OF CHEMISTS AWARD. Awarded to an outstanding undergraduate student majoring in chemical engineering on the basis of a demonstrated record of leadership, ability, character, scholastic achievement, and potential for advancement of the chemical professions.

GREG A. ANDREWS MEMORIAL AWARD. Endowed in 1969 and awarded to the senior in civil engineering who has been judged by the faculty to have made the greatest progress in professional development and who plans to do graduate work in environmental and water resources engineering.

THOMAS G. ARNOLD PRIZE. Endowed in 1989 and awarded by the biomedical engineering faculty to the senior who presents the best design of a biomedical engineering system or performance of a research project in the application of engineering to a significant problem in biomedical science or clinical medicine.

WALTER CRILEY PAPER AWARD. Endowed in 1978 and awarded in electrical and computer engineering for the best paper on an advanced senior project in electrical engineering.

JAMES SPENSER DAVIS AWARD. Given annually by the student chapter of Eta Kappa Nu in memory of Mr. Davis, this award recognizes excellence in the undergraduate study of electronics.

ARTHUR J. DYER JR. MEMORIAL PRIZE. Endowed in 1938 and awarded in civil engineering to the member of the senior class doing the best work in structural engineering.

WALTER GILL KIRKPATRICK PRIZE IN CIVIL ENGINEERING. Endowed and awarded in the School of Engineering to the most deserving third-year undergraduate student in civil engineering.

WILLIAM A. MA AWARD. Awarded to an outstanding senior majoring in chemical engineering on the basis of a demonstrated record of leadership and scholastic achievement.

WILSON L. AND NELLIE PYLE MISER AWARD. Awarded to the senior engineering student who has been judged by the faculty of mathematics to have excelled in all aspects of mathematics during his or her undergraduate career.

STEIN STONE MEMORIAL AWARD. Endowed in 1948 and awarded in the School of Engineering to the member of the graduating senior class who has earned a letter in sports, preferably in football, and who is adjudged to have made the most satisfactory scholastic and extramural progress as an undergraduate.

ROBERT D. TANNER UNDERGRADUATE RESEARCH AWARD. Awarded to a senior who, in the judgment of the chemical engineering faculty, has conducted at Vanderbilt University the best undergraduate research project.

W. DENNIS THREADGILL AWARD. Awarded to a graduating chemical engineering senior for outstanding achievement in the undergraduate program in honor of a former faculty member and department chair.

School of Engineering Academic Regulations

Honor System

All academic work at Vanderbilt is done under the honor system (see Life at Vanderbilt chapter).

Responsibility to Be Informed

It is the responsibility of the student to keep informed of course requirements and scheduling. Failure to do so may jeopardize graduation.

Academic Advising

A faculty adviser is appointed for each student. This adviser is chosen from the faculty in the student's major, when the major is known. For students who have not chosen a major upon entry, an adviser who specializes in helping undeclared students explore different pathways and decide upon a major is assigned. If a student later chooses a different department for their major, a corresponding change of adviser is made. Engineering students are required to see their advisers at registration and any other time changes must be made in their programs of study. Any student who has academic difficulty is expected to see their faculty adviser for counsel. Faculty advisers can also provide useful career guidance.

Professional Registration and Accreditation

Legislation exists in the various states requiring registration of all engineers who contract with the public to perform professional work. Although many engineering positions do not require professional certification, Vanderbilt supports registration and encourages its graduates to take the Fundamentals of Engineering examination as soon as they become eligible.

Bachelor of engineering degrees in biomedical engineering, chemical engineering, civil engineering, electrical and computer engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET (abet.org) as noted in more detail in the Accreditation section . Students in these programs may take the Fundamentals of Engineering examination as seniors. In addition, proven professional experience is a requirement for registration. Some state boards may have additional requirements for licensure.

Credit Hour Definition

Credit hours are semester hours; e.g., a three-hour course carries credit of three semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements that exceed this definition. Certain courses (e.g., dissertation research, ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester will be included in the course description.

Normal Course Load

Each semester, regular tuition is charged on the basis of a normal course load of 12 to 18 semester hours. No more than 18 or fewer than 12 hours may be taken in any one semester without authorization from the senior associate dean.

There is an extra charge for more than 18 hours at the current hourly rate. Students permitted to take fewer than 12 hours are placed on probation, unless their light load is necessary because of illness or outside employment and is approved by the senior associate dean. A student must be enrolled in a minimum of 12 hours to be classified as a full-time student.

Grading System

Work is graded by letter. *A, B, C,* and *D* are considered passing grades. The grade *F* signifies failure. A student who withdraws from a course before the date given in the Academic Calendar is given the grade *W*. A student may not withdraw from a course after that date.

Grade Point Average

A student’s grade point average is obtained by dividing the total grade points earned by the number of hours for which the student registered, excluding courses taken for no credit, those from which the student has withdrawn, those with the temporary grade of *I* or *M*, those taken in a study abroad program, and those that are completed with the grade Pass.

Defined Grades with Corresponding Grade Points Per Credit Hour

A+	= 4.0	C+	= 2.3
A	= 4.0	C	= 2.0
A–	= 3.7	C–	= 1.7
B+	= 3.3	D+	= 1.3
B	= 3.0	D	= 1.0
B–	= 2.7	D–	= 0.7
		F	= 0.0

Pass/Fail Course Provision

Students may elect to take a limited number of courses on a Pass/Fail basis. To enroll for a course on a Pass/Fail basis, students must have completed at least two semesters at Vanderbilt, must have achieved at least sophomore standing, and must not be on academic probation.

In addition, the following regulations apply to students enrolled in the School of Engineering:

1. No more than 9 hours graded Pass will be accepted toward the B.S. or B.E. degree, as designated by each program's curriculum.

Pass/Fail Electives Options by Program

	Open Elective	Liberal Arts Core	Technical Elective
BME	X	X	
CE	X	X	
CHE	X		
CMPE	X		
CS	X	X	X
ECE	X		
ES	X	X	
ME	X	X	X (non-ME)

2. No more than two courses may be taken on a Pass/Fail basis in any one semester.
3. A minimum of 12 hours must be taken on a graded basis in any semester that a Pass/Fail course is taken. A graduating senior who needs fewer than 12 hours to graduate may take courses on a Pass/Fail basis as long as he or she takes the number of hours needed to graduate on a graded basis.
4. Students may elect grading on a Pass/Fail basis and may change from Pass/Fail to graded status until the deadline date for withdrawing from a course that is published in the Academic Calendar.

Those electing the Pass/Fail option must meet all course requirements (e.g., reports, papers, examinations, attendance, etc.) and are graded in the normal way. Instructors are not informed of the names of students enrolled on a Pass/Fail basis. At the end of the semester, a regular grade is submitted for the student enrolled under the P/F option. Any grade of *D-* or above is converted in the Student Records System to a *P,* while an *F* will be recorded if a student enrolled under this option fails the course. The *P* grade is not counted in the grade point average or used in the determination of honors. The grade of *F* earned under the Pass/Fail option is included in the calculation of the grade point average.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available

I: Incomplete

To be assigned only if the following conditions apply:

1. An extenuating circumstance has emerged after the course withdrawal deadline
2. The student is up to date on all work prior to the extenuating circumstance
3. The student successfully completed at least 60% of the assigned work throughout the semester
4. The student requests the incomplete before the end of classes
5. The student has been attending a significant majority of the classes

M: Missed Final Examination or Final Evaluation

To be assigned only if the following conditions apply:

1. The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is recorded.
2. The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

F: Failure

A subject in which the grade *F* is received must be taken again in class before credit is given. A student who deserts

a course without following the correct procedure for withdrawing from it will receive an *F* in the course.

Senior Re-examination. A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed prevents the student's graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination. The re-examination must be requested through the student's Dean's Office, and, if approved, it is given immediately after the close of the last semester of the student's senior year. A student who passes the re-examination will receive a *D-* in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course. For engineering students, this senior re-examination policy applies if a student fails a course in the final semester or fails a course in the penultimate semester that is not offered in the final semester, provided that failure in that one course is the only thing preventing the student's graduation.

RC: The Repeated Course Designator

Courses in which a student has earned a grade lower than B– may be repeated under certain conditions. A course in which the student earned a grade between *D–* and *C+*, inclusive, may be repeated only once. A course may be repeated only on a graded basis, even if the course was originally taken Pass/Fail. Courses taken Pass/Fail in which the student earned a Pass may not be repeated. A course cannot be repeated through credit by examination.

Students should note that repeating a course may improve the grade point average, but it may also lead to problems in meeting minimum hour requirements for class standing and progress toward a degree. Repeating a course does not increase the number of hours used in calculation of the grade point average. All grades earned will be shown on the transcript, but only the latest grade will be used for computation of grade point averages.

W: Withdrawal

A student may withdraw from a course at any time prior to the deadline for withdrawal published in the Academic Calendar. The deadline is usually the Friday following the date for reporting mid-semester deficiencies. The *W* is recorded for any course from which a student withdraws. A course in which a *W* is recorded is not used in figuring grade point averages.

Requirements for the Degree

Candidates for a degree must have completed satisfactorily all curriculum requirements, have passed all prescribed examinations, and be free of indebtedness to the university. If graduation requirements change during the time students are in school, they may elect to be bound by the requirements published in the catalog in either their entering or their graduating year.

Grade Point Average Requirements

To be eligible for graduation, a student must have successfully completed all degree requirements and shall have earned a minimum grade point average of 2.000 in (a) all courses taken, (b) courses taken within the School of Engineering, and (c) department courses of each major.

Hours Required for Graduation

The specific course requirements and total hours required for the bachelor's degree vary with the student's major program. Detailed requirements for each program are shown in the specimen curricula in the Courses of Study section.

Residence Requirements

A minimum of four semesters including the last two semesters must be spent in residence in the School of Engineering. A student in the School of Engineering is considered "in residence" if the student is (a) physically present at Vanderbilt and enrolled in Vanderbilt University classes offered on campus, or (b) enrolled in at least 12 credit hours in an approved Vanderbilt study abroad program. During these four or more semesters, the student must have completed at least 60 semester hours of an approved curriculum in one of the degree programs.

Immersion Vanderbilt Requirement

Immersion Vanderbilt (vanderbilt.edu/immersion) allows students to pursue a multi-year path to be curious, to develop their passions and to learn by experience. To fulfill the university requirement of Immersion Vanderbilt, a student must participate in immersive experiences and then complete a culminating project that is based on one specific immersive experience.

The experiential learning may focus on one or more areas of student interest. Most engineering students will take advantage of a four-year engineering design experience to satisfy the requirements of Immersion Vanderbilt. Each engineering major offers such a multi-year experience within its curriculum. Students whose plans include professional development may also pursue industrial internships. A research path can engage the student in discovery through research in engineering or other fields. While most engineering students will select an immersion experience associated with their major, students can pursue an Immersion plan outside their home program. For example, students interested in creative expression might develop a performance piece, exhibit, or artistic work, while those interested in international study may explore firsthand the culture, language, and history of other countries. Students interested in such immersion plans should consult the Office of Immersion Resources (OIR).

The Immersion Vanderbilt process is composed of several phases. The initial step involves the creation of a plan that identifies the intended Immersive experience. Before students start their immersive experience, they will submit the Immersive Experience Declaration Form. Students may submit multiple immersive experience forms throughout their time at Vanderbilt University. After each experience, a self-reflection component is required.

Immersion Vanderbilt culminates in the creation of a final project arising from one of the experiences. Approval and assessment of the project is done by the supervising school or college. Senior design projects in the School of Engineering satisfy the final project requirement for Immersion Vanderbilt, with students presenting the results of their design project at the school's Design Day. For students completing other immersion projects, OIR coordinates a series of showcases open to the entire campus where students display their projects. Upon completion of the project, OIR conveys that the requirements have been met by showing completion of the Immersion Vanderbilt graduation requirement on the student's degree audit and adding the Immersion project to the student's transcript.

Transfer Credit

Work that a student contemplates taking at a college or university other than Vanderbilt after matriculating to VU is treated as transfer work and must be approved in advance in writing through the YES Transfer Credit application. The institution must have appropriate regional accreditation. It is the student's responsibility to provide all information needed for an assessment of the program and course(s) for which transfer credit is requested. Students must upload a detailed syllabus, which then must be approved by the Office of the University Registrar, the relevant Vanderbilt University department, and the School of Engineering Dean's Office. Work transferred to Vanderbilt from another institution will not be included in the Vanderbilt grade point average. No transfer credit course in which a grade below C- was earned or that was taken after the start of the penultimate Vanderbilt semester will be credited toward a degree offered by the School of Engineering. A course a student has taken at Vanderbilt may not be repeated in another institution to obtain a higher grade or to obtain credit. Students who have been dismissed from Vanderbilt and subsequently return to Vanderbilt are not eligible to receive transfer credit for any classes taken during the period of dismissal. Students cannot take courses for transfer credit at or through another institution while simultaneously enrolled in a semester at Vanderbilt unless authorized in advance by the School's Administrative Committee.

Credit by Examination

In certain circumstances students may be awarded course credit by departmental examination. (This procedure is distinct from the award of credit through the College Board Advanced Placement or International Baccalaureate Examinations, taken prior to a student's first enrollment at Vanderbilt or another college.)

Students who want to earn credit by departmental examination should consult the associate dean concerning procedures. To be eligible, students must be in good standing.

Students must obtain the approval of the chair of the department that is to give the examination and of the instructor designated by the chair. Students may earn up to 8 hours of credit by examination in any one

department, although this limitation might be raised on approval of the Administrative Committee. Students may attempt to obtain credit by examination no more than twice in one semester, no more than once in one course in one semester, and no more than twice in one course.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after learning the results of the examination.

Students enrolled for at least 12 hours are not charged tuition for hours for which credit by examination is awarded, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no- credit courses dropped after the change period of registration. Students in this category must pay a fee of $50 for the cost of administering the examination.

Registration

A period is designated in each semester during which continuing students, after consultation with their advisers, register for work to be taken during the next term. Students can access their registration appointment times and the registration system via YES (Your Enrollment Services) at yes.vanderbilt.edu.

Auditing

Regularly enrolled students in the School of Engineering who want to audit courses in any of the undergraduate schools of the university must get the written consent of the instructor to attend the class and register to audit the course. Forms are available from the School of Engineering Office of Academic Services. No permanent record is kept of the audit. Regular students may audit one class each semester.

Change of Course

During the change period of registration as defined in the Academic Calendar, students may add or drop courses without academic penalty. After the change period, new courses may not be added, except under very unusual circumstances and with the approval of the adviser, the course instructor, and the senior associate dean.

A student may drop a course without entry on the final record, provided the course is dropped during the change period of registration. After the second week of classes and extending to the date published in the university calendar (generally eight weeks into a semester), a course may be dropped with approval of the student's adviser; a W (withdrawal) will be recorded.

Examinations

Examinations are usually given at the end of each semester. Exams will be no longer than three hours in length and are given according to the schedule published in the *Final Examination Schedule.* The School of Engineering does not offer an alternate examination schedule. All examinations are conducted under the honor system. Students must be present for all their scheduled final exams or otherwise will default on their exams.

Class Standing

School of Engineering students are promoted on the basis of cumulative GPA, hours earned, and regular semesters in residence. For the purposes of promotion, a regular semester is defined as any fall or spring term in which a student is enrolled at Vanderbilt University. Test credit and transfer credit can be used to satisfy the credit hour requirement.

VUSE Promotion Standards

Class Standing	GPA Requirement	Credit Hour Requirement	Minimum Residence Requirement
Sophomore	1.80	24 hours earned	2 regular semesters
Junior	1.90	54 hours earned	4 regular semesters
Senior	2.00	86 hours earned	6 regular semesters

Academic Standing

Good Standing

To remain in good academic standing, a student must pursue a program leading toward a degree in the School of Engineering and meet all GPA and hours earned requirements at the conclusion of each fall and spring semester. A first-year student must successfully complete at least 12 hours and earn at least a 1.8 semester GPA each semester to remain in good standing. A sophomore, junior, or senior must complete at least 12 hours and earn at least a 2.0 semester GPA each semester to remain in good standing. In addition, a student must also promote to the next academic class every two regular semesters according to the VUSE promotion standards (above) to remain in good standing.

Probation

Students who fail to meet the GPA, hours earned, or class standing promotion standards required to remain in good standing will be placed on academic probation. Students who are not progressing toward a degree in the School of Engineering may be placed on academic probation. Students who fail to return to good standing after a semester on probation will be continued on probation or dismissed. Students who are on probation for three semesters risk dismissal.

A student authorized by the Administrative Committee to carry fewer than 12 hours because of illness or for some other approved reason may be placed on probation if the student's work is deemed unsatisfactory.

Required Leave of Absence

Under certain circumstances, a student may be required to take a semester-long leave of absence from the university. Such a leave may be required for students for whom one or more of the following conditions apply:

- Failing to pass 6 or more credit hours in a semester;
- Earning a semester grade point average of 1.4 or less; or
- Failing to improve academic achievement while on probation.

Dismissal

Any student who is deemed by the Administrative Committee not to be making satisfactory progress toward a degree in engineering will be dismissed from the School of Engineering and from Vanderbilt University. Satisfactory progress includes completing required courses in a timely manner and maintaining a 2.000 GPA in all courses, in the school, and in the student's major. Causes of dismissal include:

- Failure of all courses in any semester
- Three or more semesters on probation
- Failure to promote to the next class standing after three semesters
- Failure to progress toward a degree in the School of Engineering

Dismissed students are eligible to apply for reinstatement to the School of Engineering and to Vanderbilt University after one calendar year. The reinstatement process is outlined at registrar.vanderbilt.edu/reinstatement. Students who are dismissed and later apply for reinstatement are ineligible to receive transfer credit for courses taken while dismissed.

Class Attendance

Students are expected to attend all scheduled meetings of each class in which they are enrolled. At the beginning of each semester, instructors will explain the policy regarding absences in each of their classes. Students having excessive absences will be reported to the Office of the Dean. Class attendance may be a factor in determining the

final grade in a course.

Scholarship Requirements

Those students having honor scholarships are expected to maintain a 3.000 grade point average while taking a minimum of 12 hours. Failure to maintain a 3.000 grade point average each year will result in the cancellation of the scholarship.

Grade Reports

A grade report will be available to the student on Academic Record in YES as soon as possible after the conclusion of each semester. This report will give the total hours and grade points earned during the semester, as well as the cumulative hours and grade points earned through that semester. Students should examine these reports carefully and discuss them with their faculty advisers. Any errors should be reported immediately to the Office of Academic Services of the School of Engineering.

A grade reported and recorded in the Office of the University Registrar may be changed only upon written request of the instructor and with approval of the Administrative Committee. The committee will approve such a change only on certification that the original report was in error.

Undergraduate Enrollment in Graduate Courses

A qualified Vanderbilt junior or senior may enroll in courses approved for graduate credit by the graduate faculty. Credit from such courses may be applied to undergraduate degree requirements or, upon the student's admission to the Vanderbilt University Graduate School, toward a graduate degree. Vanderbilt cannot guarantee that another graduate school will grant credit for such courses. The principles governing this option are as follows:

1. Work taken under this option is limited to courses numbered 5000 and above and listed in the catalog of the Graduate School, excluding thesis and dissertation research courses and similar individual research and reading courses.
2. The student must, at the time of registration, have a 3.500 grade point average in the preceding two semesters.
3. The total course load, graduate and undergraduate courses, must not exceed 18 hours in that semester.
4. The student must obtain the written approval of their academic adviser and the instructor of the course on a form available in the Office of Academic Services.
5. Permission for Vanderbilt undergraduates to enroll in graduate courses does not constitute a commitment on the part of any program to accept the student as a graduate student in the future.
6. An undergraduate student exercising this option will be treated as a graduate student with regard to class requirements and grading standards.

Reserving Credit for Graduate School

1. Undergraduate students who want to count credit earned in a course numbered 5000 and higher for graduate credit must at the time of registration declare their intention on a form available in the Office of Academic Services.
2. The work must be in excess of that required for the bachelor's degree.
3. All of the criteria detailed above regarding the enrollment by undergraduates in graduate courses apply under this option.

Leave of Absence

A student at Vanderbilt or one who has been admitted to Vanderbilt may, with the approval of his or her academic dean, take an official leave of absence for as much as two semesters and a summer session. Leave of absence forms are available in the Office of Academic Services. A student who fails to register in the university at the end of the leave will be withdrawn from the university.

Change of Address

Any change of address should be reported to the Office of the University Registrar using the YES online form. The university will consider notices or other information delivered if mailed to the address on file in YES.

Normal Program of Study

The normal program of study is 12 to 18 hours per semester. Students must be authorized by the senior associate dean to register for fewer than 12 hours.

Withdrawal from the University

A student proposing to withdraw from the university must notify the Office of Academic Services of the School of Engineering so that proper clearance may be granted and incomplete work is not charged as a failure against the student's record.

Engineering Courses of Study

1000–1999: Lower-level introductory courses. Generally no prerequisite.

2000–2999: Intermediate undergraduate courses. May have prerequisite courses.

3000–4999: Upper-level undergraduate course. Usually have prerequisite courses.

5000+: Courses for graduate credit.

Bracketed numbers indicate semester hours credit, e.g., [3].

W symbols used in course numbers designate courses that meet departmental writing requirements.

Abbreviations

BME	Biomedical Engineering
CE	Civil Engineering
CHBE	Chemical and Biomolecular Engineering
CMPE	Computer Engineering
CS	Computer Science
DF	Digital Fabrication
ECE	Electrical Engineering and Computer Engineering
ENGM	Engineering Management
ES	Engineering Science
ENVE	Environmental Engineering
ME	Mechanical Engineering
MSE	Materials Science and Engineering
NANO	Nanoscience and Nanotechnology
SC	Scientific Computing

The First Year

The first-year curriculum for all engineering disciplines is:

Specimen Curriculum

FALL SEMESTER		Semester hours
CHEM 1601, 1601L	General Chemistry and Laboratory	4
MATH 1300	Accelerated Single-Variable Calculus I	4
ES 1401-1403	Introduction to Engineering	3
	Elective (Liberal Arts Core Elective preferred)	3
ES 1115	First-year Engineering Seminar (optional)	1
VV 0700	Vanderbilt Visions	0
	Total	14-15

SPRING SEMESTER		Semester hours
Basic Science‡	Basic Science Course with Laboratory (requirements depend upon major)	4
MATH 1301	Accelerated Single-Variable Calculus II	4
PHYS 1601, 1601L	General Physics I and Laboratory	4
CS 1100, 1101, 1103, or 1104*	Computer Science Course	3
ES 1001	Engineering iCommons Seminar (optional)	1
	Total	15-16

‡ Biomedical engineering and chemical engineering majors must take CHEM 1602 and 1602L; electrical and computer engineering, and mechanical engineering majors must take MSE 1500 and 1500L or CHEM 1602 and 1602L; and civil engineering and engineering science majors should consult their program's basic science and technical elective requirements for approved courses.

* Computer science majors must take CS 1101 or 1104. Electrical and computer engineering majors must take CS 1100 or 1101 or 1104. Biomedical engineering majors must take CS 1101 or 1103 or 1104.

Biomedical Engineering

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ASSOCIATE CHAIR W. David Merryman

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ADJUNCT ASSISTANT PROFESSORS Valerie Guenst, Kalana Jayawardana

ADJOINT ASSISTANT PROFESSORS Frank Block, Brian C. Evans, Judy T. Lewis, Amber Simpson

INSTRUCTOR Amanda Buck

COURSES OFFERED: BME

The foundations of biomedical engineering are the same as those in other engineering disciplines: mathematics, physics, chemistry, and engineering principles. Biomedical engineering builds on these foundations to solve problems in biology and medicine over the widest range of scales-from the nanoscale and molecular levels to the whole body. Biomedical engineering provides a robust platform for employment in the medical device and instrumentation industries as well as careers in companies that specialize in the development and application of biologics, biomaterials, implants and processes. Our graduates gain entry into nationally recognized graduate schools for continuing studies in biomedical engineering.

Biomedical engineering is also a rigorous path for admission to and success in medical school for those students

willing and able to excel in mathematics, physics, chemistry, biology, physiology, and engineering.

The Department of Biomedical Engineering at Vanderbilt is unique among biomedical engineering programs in its immediate proximity to the world class Vanderbilt Medical Center, located on our compact campus. Our School of Medicine is among the top ten in funding from the National Institutes of Health and includes a National Cancer Institute- recognized Comprehensive Cancer Center, a major children's hospital and a Level I trauma center. This proximity and the strong relationships among faculty across multiple schools stimulate high impact research and provide unique educational and research opportunities for students.

Degree Programs. The Department of Biomedical Engineering offers courses of study leading to the B.E., M.S., M.Eng., and Ph.D. Vanderbilt biomedical engineering is a well-established program with undergraduate degrees granted continuously since 1965. Our undergraduate curriculum undergoes regular review and revision to ensure relevancy and to maintain full ABET accreditation. Students have complete flexibility in the selection of biomedical engineering, technical, and open electives. This allows students to design their own focus areas such as regenerative medicine and tissue engineering, wearables and point-of-care diagnostics, global health, surgery and engineering, robotics and prosthetics, lasers and medicine, medical imaging, biotechnology and nanomedicine, medical technology and entrepreneurship.

Facilities. The Department of Biomedical Engineering is located in Stevenson Center. Undergraduate instructional laboratories are equipped for study of biomedical processes, measurement methods and instrumentation. These facilities are equipped with embedded systems for instrumentation, design, and testing that mirror professional practice. Specialized facilities for biomedical imaging, biophotonics, surgery and engineering, regenerative medicine, nanobiotechnology, and nanomedicine are used both for faculty-led research and instructional purposes.

Undergraduate Honors Program. With approval of the Honors Program director, junior and senior students in biomedical engineering who have achieved a minimum grade point average of 3.5 may be accepted into the undergraduate Honors Program. Students in the program take at least 6 credit hours of 5000-level or above (graduate) biomedical engineering courses, which can be counted toward the 127-hour undergraduate degree requirements as biomedical engineering electives or which can be taken for graduate school credit. Students in the Honors Program must also complete a two-semester-long research project and present a research report; this is generally accomplished through the BME 3860 and 3861 Undergraduate Research elective courses. Honors students must make a grade point average of 3.0 in these classes and maintain an overall 3.5 GPA to be designated as an honors graduate. The diploma designation is Honors in Biomedical Engineering.

Curriculum Requirements

The B.E. in biomedical engineering requires a minimum of 127 hours, distributed as follows:

1. Mathematics (15 hours): MATH 1300, 1301, 2300, 2400.
2. Basic Science (20 hours): CHEM 1601, 1601L, 1602, 1602L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510, 1510L.
3. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1101 or 1103 or 1104. (CS 1103 is strongly recommended except for students minoring in Computer Science).
4. Electrical Engineering (3 hours): ECE 2112.
5. Biomedical Engineering (38 hours): BME 2100, 2301, 2302, 2400, 2900W, 3000, 3301, 3302, 3400, 3500, 3900W, 4901W, 4950, 4951, 4959.
6. Biomedical Engineering electives (12 hours) comprising:
    1. BME courses numbered 2210 and higher (except BME 2860 and designated sections of 3890–3893) to include up to 6 hours total of BME 3860, 3861.
    2. Any one of the following: CHBE 4500, 4800, 4805, 4810, 4820, 4870; EECE 3214, 4353, 4354; ENVE 4610; ME 2220.
7. Technical electives (9 hours) comprising:

1. BME, CHBE, CE, CS, ECE, ENGM, ENVE, ME, MSE, NANO, and SC courses except BME 1015, CHBE 3300, CE 2200, CS 1000, 1151, ENGM 2160, 2440, 3100, 3350, 4800, ME 2171, and any School of Engineering courses numbered 2860. Up to 3 hours of independent study courses in the School of Engineering may be taken as technical electives.
2. ES 3230, 3231, and 3232
3. Courses numbered 2000 or higher in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution category except MATH 2610, 2810, 2820, and 3000.
4. BSCI 1511, 1511L; MHS 1500, 1600.

8. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
9. Open electives (6 hours).

Undergraduates in biomedical engineering may apply the pass/fail option only to courses taken as liberal arts core or open electives, subject to school requirements for pass/fail.

Specimen Curriculum for Biomedical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
BSCI 1510, 1510L	Introduction to Biological Sciences with Laboratory	4	–
BME 2100	Biomechanics	–	3
BME 2301, 2302	Systems Physiology I, II	3	3
BME 2400	Quantitative Methods I: Statistical Analysis	–	3
BME 2900W	Biomedical Engineering Laboratory I	–	1
ECE 2112	Circuits I	–	3
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics with Laboratory II	4	–
	Liberal Arts Core	3	–
		17	17
JUNIOR YEAR			
BME 3000	Physiological Transport Phenomena	3	–
BME 3301, 3302	Biomedical Instrumentation I, II	4	4
BME 3400	Quantitative Methods II: Signals and Modeling	3	–
BME 3500	Biomedical Materials	–	3
BME 3900W	Biomedical Engineering Laboratory II	1	–
	Biomedical Engineering and/or Technical Elective	3	6
	Liberal Arts Core	3	3
		17	16
SENIOR YEAR			
BME 4901W	Biomedical Engineering Laboratory III	1	–
BME 4950, 4951	Design of Biomedical Engineering Systems I, II	2	3
BME 4959	Senior Engineering Design Seminar	1	–
	Biomedical Engineering and/or Technical Elective	6	6
	Liberal Arts Core	3	3
	Open Elective	3	3
		16	15

Double Majors

I. The double major in biomedical engineering and electrical and computer engineering requires a minimum of 130 semester hours. A specimen curriculum for the double major with electrical and computer engineering can be found on the biomedical engineering department's website. The requirements include those numbered 1, 2, and 8 for the B.E. in biomedical engineering and the following:
   a. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1101 or 1104.
   b. Biomedical Engineering Core (32 hours): BME 2100, 2301, 2302, 2400, 2900W, 3000, 3302, 3500, 3900W, 4901W, 4950, 4951, 4959.
   c. Biomedical Engineering Electives (3 hours): BME courses numbered 2210 and higher (except BME 2860, 3301, 3400 and designated sections of 3890–3893).
   d. Electrical Engineering Core (18 hours): EECE 2112, 2112L, 2123, 2123L, 2214, 3235, 3235L; CS 2201 or 2204.
   e. Electrical and Computer Engineering Electives (18 hours) selected as described by item 6 of the Curriculum Requirements in the Electrical and Computer Engineering section of the catalog, but totaling at least 18 hours. The courses must include:
      - at least 9 hours in one and at least 6 hours in another of the Areas of Concentration listed under

Electrical and Computer Engineering in the Undergraduate Catalog. BME 3302 may be included toward satisfying the Area of Concentration requirement but cannot be counted as an Electrical and Computer Engineering elective.
- at least one Design Domain Expertise course as designated in the catalog.

II. The double major in biomedical and chemical engineering requires a minimum of 131 hours and is described in the chemical engineering section of the catalog under its curriculum requirements.

Chemical Engineering

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DIRECTOR OF GRADUATE RECRUITING G. Kane Jennings

DIRECTOR OF UNDERGRADUATE STUDIES Ethan Lippman

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ASSISTANT PROFESSOR OF THE PRACTICE Davud C. Florian, Julianne Vernon

RESEARCH ASSISTANT PROFESSORS Karan Arora, Vijay Bharti, Peifu Chang, Clinton Hasenour, Hyosung Kim, Bo Li, Hongiun Liu, Bo Wang

ADJUNCT ASSISTANT PROFESSOR Bryan R. Beyer

COURSES OFFERED: CHBE

Chemical engineers play key roles in the development and production of commodity chemicals, pharmaceuticals, and bioengineered materials, high strength composites and specialty polymers, semiconductors and microelectronic devices, and a wide range of ultrapure fine chemicals. Indeed, chemical engineering is essential for the operation of

contemporary society. The solutions to many of the problems that we face today—e.g., energy, the environment, development of high-performance materials—will involve chemical engineers.

The undergraduate program in chemical engineering prepares students to contribute to the solution of these and similar problems. Graduates find meaningful careers in industry, in government laboratories, and as consultants. Some continue their education through graduate studies in chemical engineering, business, law, or medicine.

Mission. The mission of the Department of Chemical and Biomolecular Engineering is to educate those who will advance the knowledge base in chemical engineering, become practicing chemical engineers, and be leaders in the chemical and process industries, academia, and government; to conduct both basic and applied research in chemical engineering and related interdisciplinary areas; and to provide service to the chemical engineering profession, the School of Engineering, Vanderbilt University, the country, and the world.

Degree Programs. The Department of Chemical and Biomolecular Engineering offers the B.E. in chemical engineering and graduate study leading to the M.Eng., M.S., and Ph.D.

Undergraduate chemical engineering students acquire a solid background in mathematics, chemistry, biology, and physics. The chemical and biomolecular engineering program has as its basis courses in transport phenomena, thermodynamics, separations, and kinetics. Other courses deal with the principles and techniques of chemical engineering analysis and design, along with economic analysis, process control, chemical process safety, and engineering ethics. Laboratory courses offer the student an opportunity to make fundamental measurements of momentum, heat, and mass transport and to gain hands-on experience with bench scale and small scale pilot-plant apparatus, which can be computer controlled. Report writing is a principal focus in the laboratory courses. Many students have the opportunity to carry out individual research projects.

A specimen curriculum for a chemical engineering major follows. This standard program includes a number of electives. Students, in consultation with their faculty advisers, may choose elective courses that maintain program breadth or may pursue a minor or focus area with their chemical engineering major. Specimen curricula with emphases in specific areas are available on the department website. Double majors may be arranged in consultation with a faculty adviser.

Students are recommended to take the Fundamentals of Engineering Examination (FE) in their senior year. This is the first step in obtaining a license as a professional engineer. The following courses are recommended for preparation for the FE: ECE 2112, CE 2200, and ME 2190.

Undergraduate Honors Program. The Honors Program in chemical engineering provides an opportunity for selected students to develop individually through independent study and research. General requirements are described in the Special Programs chapter. The chemical and biomolecular engineering department requires a minimum overall GPA of 3.5. Acceptance to the program is made by petition to the faculty during the junior year. Transfer students may be considered for admission after completing one semester at Vanderbilt. Candidates for honors choose their technical courses with the consent of a faculty honors adviser. Requirements include at least 6 hours of CHBE courses numbered 5000 or above, plus 6 hours of CHBE 3860 and 3861 taken in the junior and/or senior year under the direction of a faculty honors adviser. A formal written research report is submitted each semester CHBE 3860 or 3861 is taken with a final report and presentation given in the spring semester of the senior year to the CHBE faculty and students. The diploma designation is Honors in Chemical Engineering.

Facilities. The chemical and biomolecular engineering department is located in Olin Hall of Engineering. Undergraduate instructional laboratories are equipped for study of transport phenomena, unit operations, kinetics, and process control. Current research areas for which facilities are available include molecular modeling; colloid and surface science; biochemical engineering and biotechnology; materials processing and characterization; energy and the environment.

Curriculum Requirements

The B.E. in chemical engineering requires a minimum of 125 hours, distributed as follows:

1. Mathematics (14 hours): MATH 1300, 1301, 2300, 2420.
2. Basic Science (27 hours): CHEM 1601, 1601L, 1602, 1602L, 2221, 2221L, 2222, 2222L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510 or CHBE 2150.
3. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1100 or 1101 or 1103 or 1104 (CS 1100 or 1103 preferred).
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Chemical and Biomolecular Engineering (39 hours): CHBE 2100, 2200, 2250, 2900W, 3200, 3250, 3300, 3350, 3600, 3900W, 4900W, 4950W, 4951W, 4959.
6. Chemical and Biomolecular Engineering electives: 6 hours selected from CHBE courses numbered 4000 or above and ENVE 4625.
7. Statistics (3 hours): One of DS 2100, BME 2400, CE 3300 or MATH 2810
8. Technical electives (6 hours). To be selected from: a) courses numbered 2000 or above in BME, CHBE, CE, CS, DF, ECE, ENVE, ME, MSE, NANO, and SC, except ME 2220 and any School of Engineering course numbered 2860; b) courses numbered 1500 or above in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution category; and c) ENGM 3000, 3010, 3300, 3650, 3700, 4500. At least 3 hours must be selected from BSCI 2201, 2520; CHEM 3300, 3310; ENVE 4600 or CHBE courses numbered 4000 and above.
9. Open electives (6 hours).

Undergraduates in chemical engineering, including double majors with chemical engineering, may apply the pass/fail option only to courses taken as open electives, subject to the school requirements for pass/fail. No more than 6 total hours of CHBE 3860 and 3861 may be applied toward degree requirements.

Double Majors

I. The double major in chemical engineering and biomedical engineering requires a minimum of 131 semester hours distributed as follows:
   a. Mathematics (15 hours): MATH 1300, 1301, 2300, 2400.
   b. Engineering Fundamentals (6 hours): ES 1401, 1403, 1403; CS 1101 or 1103 or 1104.
   c. Basic Science (28 hours): CHEM 1601, 1601L, 1602, 1602L, 2221, 2221L, 2222, 2222L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510, 1510L.
   d. Chemical and Biomolecular Engineering (29 hours): CHBE 2100, 2200, 3200, 3250, 3300, 3350, 4900W, 4950W, 4951W, 4959.
   e. Biomedical Engineering (29 hours): BME 2100, 2301, 2302, 2400, 2900W, 3301, 3302, 3400, 3500, 3900W, 4959.
   f. Electrical Engineering (3 hours): ECE 2112.
   g. CHBE/BME Elective: 3 hours selected from CHBE 4500, 4800, 4805, 4810, 4820 and BME courses numbered 4000 and above except BME 6110. BME 3890 and CHBE 3890 may be substituted upon approval of the Directors of Undergraduate Studies for BME and CHBE.
   h. Liberal Arts Core (18 hours): To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.

II. The double major in chemical engineering and chemistry requires a minimum of 130 semester hours. The requirements include those numbered 1, 2, 3, 4, and 6 for the B.E. in chemical engineering and the following:
   a. Chemical and Biomolecular Engineering (36 hours): CHBE 2100, 2200, 2250, 2900W, 3200, 3250, 3300, 3350, 3600, 4900W, 4950W, 4951W, 4959.
   b. Science (23 hours): CHEM 2100, 2100L, 3010, 3315; CHEM 3300 or 3310; either CHEM 4965 and 4966 or 6 hours selected from CHEM 3980, 4980, and 4999; BSCI 1510 or CHBE 2150; BSCI 2520.
   c. Engineering Elective: 3 hours selected from courses numbered 2000-3800 or 3890 and above in BME, CHBE, CE, CS, EECE, ENVE, and ME, except courses numbered 2860.

Specimen Curriculum for Chemical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
CHEM 2221, 2222	Organic Chemistry	3	3
CHEM 2221L, 2222L	Organic Chemistry Laboratory	1	1
MATH 2300	Multivariable Calculus	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CHBE 2100	Chemical Process Principles	3	–
CHBE 2200	Chemical Engineering Thermodynamics	–	3
CHBE 2250	Modeling and Simulation in Chemical Engineering	–	3
CHBE 2900W	Technical Communications for Chemical Engineers	–	1
	Liberal Arts Core	3	3
		17	17
JUNIOR YEAR			
CHBE 2150	Molecular and Cell Biology for Engineers	3	–
CHBE 3200	Phase Equilibria and Stage-Based Separations	3	–
CHBE 3250	Chemical Reaction Engineering	–	3
CHBE 3300	Fluid Mechanics and Heat Transfer	3	–
CHBE 3350	Mass Transfer and Rate-Based Separations	–	3
CHBE 3900W	Chemical Engineering Laboratory I	–	3
	Chemical and Biomolecular Engineering Elective	–	3
	Statistics Elective: DS 2100, BME 2400, CE 3300, or MATH 2810	3	-
	Liberal Arts Core	3	3
		15	15
SENIOR YEAR			
CHBE 3600	Chemical Process Control	3	–
CHBE 4900W	Chemical Engineering Laboratory II	3	–
CHBE 4950W	Chemical Engineering Process and Product Design	4	–

CHBE 4951W	Chemical Engineering Design Projects	–	3
CHBE 4959	Professional Practice of Safety in Chemical Engineering Design	1	–
	Chemical and Biomolecular Engineering Elective	–	3
	Liberal Arts Core	–	3
	Technical Elective*	3	3
	Open Elective	3	3
		17	15

*At least 3 hours must be selected from BSCI 2201, 2520; CHEM 3300, 3310; ENVE 4600 or CHBE courses numbered 4000 and above.

Specimen curricula for the double majors with biomedical engineering and with chemistry can be found on the department's website.

Civil Engineering

Degree Programs

B.E./M.Eng. Five Year Program

Construction Management Five Year Program

Undergraduate Honors Program

Facilities

Curriculum Requirements

Specimen Curriculum for Civil Engineering

Pre-Architecture Advising

Minor in Environmental Engineering

Minor in Energy and Environmental Systems

CHAIR Caglar Oskay

ASSOCIATE CHAIR Hiba Baroud

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DIRECTORS OF GRADUATE RECRUITING Hiba Baroud (Civil Engineering), Shihong Lin (Environmental Engineering)

DIRECTOR OF UNDERGRADUATE STUDIES Lori A. Troxel

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PROFESSORS Mark D. Abkowitz, Douglas E. Adams, John Ayers, David J. Furbish, David S. Kosson, Eugene J. Leboeuf, Sankaran Mahadevan, Caglar Oskay, Florence Sanchez, Matthew Weinger, Daniel B. Work

PROFESSORS OF THE PRACTICE Curtis D. Byers, Sanjiv Gokhale, Steven L. Krahn, Lori A. Troxel

RESEARCH PROFESSORS Janey S. Camp, Craig E. Philip

ADJUNCT RESEARCH PROFESSOR Jesus Gomez Velez

ASSOCIATE PROFESSORS Hiba Baroud, Alan R. Bowers, Ravindra Duddu, Jonathan Gilligan, Shihong Lin, Jonathan Sprinkle, Ahmad Taha

RESEARCH ASSOCIATE PROFESSORS Kevin G. Brown, Andrew G. Garrabrants

ASSISTANT PROFESSOR OF THE PRACTICE Ghina Absi

RESEARCH ASSISTANT PROFESSORS Leah Dundon, Chen Gruber, Pranav Karve

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ADJUNCT INSTRUCTORS David Livingston, Keith Loiseau, Heather Smith, Bryan Tharpe, Hannah Walter, Adrian Ward

LECTURER Phillip Collins

COURSES OFFERED: CE

Vanderbilt's Department of Civil and Environmental Engineering offers a broad-based education in civil and environmental engineering fundamentals, coupled with development of leadership, management, and communications skills to establish a foundation for lifelong learning and flexible career development. This goal requires going beyond technical competence in a balanced education to develop future leaders in the fields of consulting, industry, business, law, government, and research. Civil engineers must be able to face complex problems of modern society involving the development of physical facilities that serve the public while protecting the environment and preserving social values. Challenges facing civil and environmental engineers concern housing, urban transportation, pollution control, water resources development, industrial development, maintaining and advancing our nation’s aging infrastructure, and exploring space. Addressing these challenges with today’s limited resources requires innovative and original ideas from highly-skilled engineers.

Undergraduates majoring in civil engineering receive a strong background in mathematics, science, engineering science, and engineering design. The program also includes courses in economics, humanities, social sciences, resources management, and public policy. Students participate in design teams and laboratory studies as well as classroom activities. Use of various computer-based methods is integral to problem solving and design.

Degree Programs. At the undergraduate level, the Department of Civil and Environmental Engineering offers the B.E. in civil engineering. The curriculum includes upper-level analysis and design courses in structural, geotechnical, environmental, water resources, and transportation engineering. In addition, a major in chemical engineering with a minor in environmental engineering is available.

Vanderbilt’s B.E. in civil engineering prepares students for entry-level positions in many specialty areas of civil engineering, as well as many other types of careers, such as business, construction, and law. Today, however, and even more so in the future, professional practice at a high level will require an advanced degree. We recommend that students seriously consider pursuing the M.S. or M. Eng. soon after obtaining the B.E.

At the graduate level, the department educates leaders in infrastructure and environmental engineering research and practice, with emphasis on the use of reliability and risk management. Reliability and risk management includes engineering design, uncertainty analysis, construction and repair, life-cycle and cost-benefit analysis, information management, and fundamental phenomena intrinsic to the understanding of advanced infrastructure and environmental systems. Example applications include performance, reliability and safety of structures, restoration of contaminated sites, transportation control systems, management of environmental resources, and enhancement of the eco-compatibility of industry. Development and application of advanced information systems as applied to civil

and environmental engineering needs is an important part of the program.

The graduate program in civil engineering offers the M.S. and Ph.D., with emphasis in the areas of structural engineering and mechanics and transportation engineering.

The graduate program in environmental engineering offers the M.S. and Ph.D. in the areas of environmental engineering and environmental science, with emphasis in water resources, quality, and treatment; resilience and sustainability; nuclear environmental engineering; and environmental materials and materials durability. Both thesis and non-thesis options are available at the M.S. level.

The graduate programs in both civil engineering and environmental engineering also offer the master of engineering (M.Eng.), an advanced professional degree especially designed for practicing engineers wanting to pursue post-baccalaureate study on a part-time basis, and for engineers seeking greater emphasis on engineering design as part of graduate education.

B.E./M.Eng. Five Year Program. Students seeking advanced study in civil and environmental engineering may be interested in the combined B.E./M.Eng., enabling students to complete the B.E. in civil engineering and M.Eng. in civil engineering or environmental engineering in five years.

Construction Management Five Year Program. Students seeking advanced study in construction management may be interested in the combined B.E./M.Eng., enabling students to complete the B.E. in civil engineering and M.Eng. in civil engineering (construction management emphasis) in five years.

Undergraduate Honors Program. Recognized with the diploma designation Honors in Civil Engineering, exceptional students may be invited in their junior year to participate in the civil engineering Honors Program. Designed as a unique individualized educational experience, participants work closely with departmental faculty members to tailor a selection of courses that actively immerses them in a selected field of study. Experiences include enrollment in a 3 semester hour independent study course and participation in a summer research internship. Honors Program participants are especially well-prepared to enter graduate study, and they may count the independent study course towards their civil engineering technical electives.

Facilities. The civil engineering laboratory provides for static and dynamic testing of materials and structural components and assemblies. Testing facilities include capabilities of testing composites, metals, and concrete under static loads, fatigue, base acceleration (to simulate seismic events) and intermediate to high speed impacts (to simulate responses to blast events). Full soils testing facilities are available. Hydraulics facilities include several model flow systems to illustrate principles of fluid mechanics and hydrology. The transportation laboratory is computer-based, with emphasis on transportation systems and design, intelligent transportation systems, and geographic information systems.

The environmental laboratories are fully supplied with modern instrumentation for chemical, physical, biological, and radiological analysis of soils, sediments, water, wastewater, air, and solid waste. They include equipment for the study of biological waste treatment, physical-chemical waste treatment, contaminant mass transfer, and state-of-the-art instrumentation for gas and liquid chromatography, mass spectroscopy, atomic absorption spectroscopy, gamma spectroscopy, inductively coupled plasma mass spectroscopy, gas adsorption (for pore structure determination), thermal mechanical analysis, modulated scanning differential calorimetry, and simultaneous thermal gravimetric analysis differential scanning calorimetry/mass spectroscopy. All are available for student use in courses, demonstrations, and research.

Curriculum Requirements

The B.E. in civil engineering requires a minimum of 125 hours, distributed as follows:

1. Mathematics (14 hours). Required courses: MATH 1300, 1301, 2300, 2420.
2. Basic science (12 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L.
3. Basic science elective (4 hours). To be selected from: BSCI courses numbered 1510 and 1510L and above; and EES 1030 and 1030L, 1081 and 1081L, 1510 and 1510L.
4. Computing (3 hours). Required course: CS 1100 or 1101 or 1103 or 1104.
5. Engineering Fundamentals (26 hours). Required courses: ES 1401, 1402, 1403; CE 2101, 2200, 2205, 3700, 3700L; ENGM 2160; ME 2190; MSE 2205; ME 2220 or CHBE 2200 (students with interests in Environmental and Infrastructure Sustainability Engineering are encouraged to enroll in CHBE 2200).
6. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
7. Open electives (6 hours).
8. Technical electives (3 hours). To be selected from: (a) courses in BME, CHBE, CE, ENVE, ECE, ME, MSE (except any course numbered 2860 and MSE 3860, 3889, 3890) (b) ENGM 3000, 3010, 3200, 3650 (except BME 2860 and MSE 3860, 3889, 3890); (c) all courses acceptable as science electives as indicated above; (d) CHEM 1602 and above; (e) PHYS courses above 2000 (astronomy not accepted); and (f) MATH 2410 or 2600, and courses 2811 and above (except 3000); (g) all CS courses 2000 and above (except 2860 4959); and (h) DS 3100, 3262. Students with an interest in Structural Engineering are encouraged to take MATH 2410 or 2600 as their technical elective.
9. Civil Engineering Core (27 hours). Required courses: CE 2120, 3100W, 3200, 3205, 3300, 3501, 3705, 4400, 4950, 4951, and 4959.
10. Civil Engineering Program Electives (6 hours). To be selected from: CE 3250, 3600, 4150, 4250; ENVE 4610, 4615, 4625, 4800.
11. Civil Engineering Design Electives (6 hours). To be selected from: CE 4150, 4200, 4210, 4240, 4250, 4425, 4430, 4500, 4505, 4510; ENVE 4305, 4610, 4625, 4710.

Students may use CE program electives, CE design electives, technical electives, and open electives to gain additional depth and expertise. Students with interests in structural engineering are recommended to take electives such as CE 3250, 4200, 4210, 4211, 4250, 4300, ENVE 4305, and ME 4259, 4275. Students interested in environmental and infrastructure sustainability engineering are recommended to take electives such as CE 3600, 4100, 4150, 4240, 4300, ENVE 4305, 4600, 4605, 4610, 4615, 4620, 4700, 4705, 4707, 4710, 4715, 4716, and 4720. Specific courses selections should be discussed with their academic adviser. Students desiring advanced topic coverage should also consider 5000- level courses, with approval of their adviser.

Undergraduates in civil engineering may apply the pass/fail option only to courses taken as liberal arts core or open electives, subject to the school requirements for pass/fail.

Specimen Curriculum for Civil Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
MATH 2300	Multivariable Calculus	3	–
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CE 2101	Civil and Environmental Engineering Information Systems	3	–
CE 2120	Sustainable Design in Civil Engineering	3	–
CE 2200	Statics	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
CE 2205	Mechanics of Materials	–	3
CE 3501	Transportation Systems Engineering	–	3
ME 2190	Dynamics	–	3
	Thermodynamics (ME 2220 or CHBE 2200)	–	3
	Liberal Arts Core	–	3
		16	18
JUNIOR YEAR			
CE 3200	Structural Analysis	3	–
CE 3700, 3700L	Fluid Mechanics and Laboratory	4	–
MSE 2205	Strength and Structure of Engineering Materials	1	–
	CE Program Elective	3	–
	Elective*	3	–
	Liberal Arts Core	3	3
CE 3100W	Civil and Environmental Engineering Laboratory	–	2
CE 3205	Structural Design	–	3
CE 3300	Risk, Reliability, and Resilience Engineering	–	3
CE 3705	Water Resources Engineering	–	3
ENGM 2160	Engineering Economy	–	3
		17	17
SENIOR YEAR			
CE 4400	Construction Project Management	3	–
CE 4950	Civil Engineering Design I	1	–
CE 4959	Senior Engineering Design Seminar	1	–
	CE Design Elective	3	3
	Elective*	3	3
	Liberal Arts Core	3	3
CE 4951	Civil Engineering Design II	–	2
	Open Elective	–	3
		14	14

*To be selected toward satisfying the following degree requirements: 6 hours of Program Electives, 3 hours of Technical Electives, and 6 hours of Open Electives.

Pre-Architecture Advising

Civil engineering students interested in pursuing architecture at the graduate level should include courses that emphasize a broad sense of art and architectural history, including courses in studio art. Before applying to graduate programs, students will need to develop a portfolio of creative work that generally includes drawing, prints, sculpture, photographs, and creative writing. Further information is available at: as.vanderbilt.edu/paa/.

Minor in Environmental Engineering

A minor in environmental engineering is available to all non-civil engineering students. It requires a total of 15 hours of environmental engineering courses, comprising 6 hours of required courses and 9 hours of electives, chosen from the following list:

Required Courses (6 hours)

CE 3600 – Environmental Engineering

ENVE 4600 – Environmental Chemistry

Elective Courses (9 hours)

CE 3705 – Water Resources Engineering

CE 4100 – Geographic Information Systems

ENVE 4305 – Enterprise Risk Management

ENVE 4605 – Environmental Thermodynamics, Kinetics, and Mass Transfer

ENVE 4610 – Biological Processes in Environmental Systems

ENVE 4615 – Environmental Assessments

ENVE 4620 – Environmental Characterization and Analysis

ENVE 4625 – Environmental Separations Processes

ENVE 4700 – Energy and Water Resources

ENVE 4705 – Physical Hydrology

ENVE 4710 – Hydrology

ENVE 4715 – Groundwater Hydrology

ENVE 4720 – Surface Water Quality Modeling

ENVE 4800 – Nuclear Environmental Engineering

Minor in Energy and Environmental Systems

The minor in energy and environmental systems is designed to provide students with a working knowledge of the fundamentals of energy systems and their impact on the environment. The future health and well-being of humanity hinge in large part on smart production and use of energy, water, and related resources, as these are central determinants of climate change, habitable space, and human and ecological health. This program examines the relationships among individual, institutional, and societal choices for energy production and use, and the impacts and benefits of these choices on the environment and health through climate, water quality, and natural resources. It requires a total of 15 semester hours of course work, some of which may be taken as electives associated with the

student's major program. Five courses are required: two core courses and three elective courses taken from at least 2 areas (at least one course from each of two areas): Area I: Energy Systems, Area II: Environmental Engineering, and Area III: Environmental Survey.

Required Courses (6 hours)

ENVE 4615 – Environmental Assessments

CE 4150 – Energy Systems Engineering

Elective Courses (9 hours)

Area I: Energy Systems

ECE 4267 – Power System Analysis

ME 3890 – Special Topics: Nuclear Power

ME 4260 – Energy Conversion I

ME 4264 – Internal Combustion Engines

ME 4265 – Direct Energy Conversion

Area II: Environmental Engineering

CE 3600 – Environmental Engineering

CE 3705 – Water Resources Engineering

ENVE 4305 – Enterprise Risk Management

ENVE 4605 – Environmental Thermodynamics, Kinetics, and Mass Transfer

ENVE 4620 – Environmental Characterization and Analysis

ENVE 4710 – Hydrology

ENVE 4800 – Nuclear Environmental Engineering

ME 4262 – Environmental Control

Area III: Environmental Survey

ANTH 4154 – Energy, Environment, and Culture

CE 4100 – Geographic Information Systems

CE 4430 – High Performance and Green Buildings

EES 1080 – Earth and the Atmosphere

EES 2110 – Introduction to Climate Change

PHIL 3611 – Environmental Philosophy

SOC 3315 – Human Ecology and Society

Computer Engineering

Undergraduate Honors Program

CHAIR Bennett A. Landman

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DIRECTOR OF UNDERGRADUATE STUDIES W. Timothy Holman

PROFESSORS EMERITI Arthur J. Brodersen, James A. Cadzow, J. Michael Fitzpatrick, Kazuhiko Kawamura, Stephen R. Schach

PROFESSORS Bharat L. Bhuva, Gautam Biswas, Robert E. Bodenheimer, Jr., Benoit M. Dawant, Aniruddha S. Gokhale, Gábor Karsai, Xenofon D. Koutsoukos, Bennett A. Landman, Akos Ledeczi, Lloyd W. Massengill, Padma Raghavan, Nilanjan Sarkar, Douglas C. Schmidt, Ronald D. Schrimpf, Janos Sztipanovits

PROFESSOR OF THE PRACTICE Walter Collett

ASSOCIATE PROFESSORS Abhishek Dubey, Douglas H. Fisher, Jules White, D. Mitchell Wilkes

ASSOCIATE PROFESSOR OF THE PRACTICE Graham S. Hemingway

RESEARCH ASSOCIATE PROFESSOR Brian D. Sierawski

ASSISTANT PROFESSORS Matthew Berger, Catie Chang, Yuankai Huo, Taylor Johnson, Maithilee Kunda, Jack H. Noble, Ipek Oguz

ADJUNCT ASSISTANT PROFESSOR Andrew Sternberg

COURSES OFFERED: ECE

The program in computer engineering deals with the organization, design, and application of digital processing systems as general-purpose computers or as embedded systems, i.e., components of information processing, control, and communication systems. The program provides a strong engineering background centered on digital technology combined with an understanding of the principles and techniques of computer science. Computer engineering is design-oriented. The basic principles of engineering and computer science are applied to the task at hand, which may be the design of a digital processor, processor peripheral, or a complete digital processor-based system.

Whatever the undertaking, the comprehensive academic training in this program enables engineers to evaluate the impact of their decisions, whether working with hardware, software, or the interface between the two.

The computer engineering program combines fundamental core requirements with flexibility to allow students to specialize in a variety of emphasis areas within the program. The curriculum includes requirements in the basic sciences, mathematics, and humanities; a primary core of hardware and software courses; and a set of electives that combine breadth and depth requirements as described below. Students who major in computer engineering who wish to apply for graduate study in electrical engineering or computer science are encouraged strongly to select their elective courses to demonstrate depth in that particular area; the structure of the program enables that option. The course of study leads to a bachelor of engineering.

Undergraduate Honors Program. With faculty approval, junior and senior students may be accepted into the Honors Program. To achieve honors status, the student must:

1. achieve and maintain a minimum GPA of 3.5.
2. complete 3 hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861) with final written report
3. complete 6 hours of ECE program elective credit from the following list:
    a. up to 3 additional hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861), or
    b. design domain expertise (DE) courses beyond the one course required by the program, or
    c. CS 3259, CS 3892, CS 4287, or
    d. 5000-level courses.

The diploma designation is Honors in Computer Engineering.

Facilities. Electrical and computer engineering supports undergraduate laboratories emphasizing the principal areas of the disciplines: analog and digital electronics, microcomputers, microprocessors, microelectronics, and instrumentation. In addition, several specialized facilities are available for graduate research: the advanced carbon nanotechnology and diamond labs, the Institute for Software Integrated Systems, the Institute for Space and Defense Electronics, the Medical Image Processing Laboratory, the Center for Intelligent Systems and Robotics Laboratories, the Embedded Computer Systems Laboratory, and biomedical, biosensing, and photonics laboratories.

The work in electrical and computer engineering is supported by a variety of computers and networks, including the high-performance computing facilities of the Advanced Computing Center for Research and Education. Vanderbilt is one of the founding partners in the Internet II initiative.

Students interested in the major or minor in Computer Engineering are encouraged to consider instead those in Electrical and Computer Engineering.

The major or minor in Computer Engineering may no longer be declared. CmPE students will be supported in completing the relevant program, including the pursuit of honors in the major if relevant.

Curriculum Requirements

The B.E. in computer engineering requires a minimum of 121 hours, distributed as follows:

1. Mathematics (18 hours). Required courses: MATH 1300, 1301, 2300, 2400, 2810
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L; MSE 1500, 1500L (or CHEM 1602, 1602L).
3. Engineering Fundamentals (6 hours). Required courses: ES 1401, 1402, 1403, 2100W.
4. Culminating Design Experience (7 hours). Required courses: ECE 4950, 4951, 4959.
5. Computer Engineering Core (at least 23 hours). Required courses: ECE 2112, 2123, 2123L, 2218, 2218L; either ECE 2213 (and 2213L) or 3214; CS 1101 or 1104; CS 2201, 3251.
6. Computer Engineering Electives (18 hours). To comprise:
    a. at least six hours in each of two of the three Computer Engineering Areas of Concentration listed below. Embedded Systems must include ECE 4376, Computing Systems and Networks must include CS 3281, and Intelligent Systems and Robotics must include ECE 4257 among the six hours.
    b. at least one design domain expertise (DE) course as designated below
    c. other courses listed in the Computer Engineering Areas of Concentration below, or ECE or CS courses numbered above 3000 (including CS 3860, 3861, and ECE 3860, 3861).
    d. courses with associated labs require completion of both the lecture and lab portions to count as Computer Engineering Electives.
7. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
8. Technical electives (12 hours).
    a. CHBE (except 2150, 2900W); CE; CS (except 1000, 1101, 1103, 1104, 1151); ECE (hours above basic requirement in sections 5 and 6 above); ENGM 3010; ENVE; ES 3300; ME; MSE (except 1500, 1500L); NANO 3000; SC 3250, 3260 (6-12 hours). At least 6 hours must be taken from the following approved engineering technical electives: BME (except 2860)**;
    b. (0-6 hours). Up to 6 hours may be taken from this list of optional technical electives: ENGM 2160, 2210,

3000, 3100, 3300, 3650, 4500; MSE 1500, 1500L (if CHEM 1602, 1602L is used for basic science requirement); ASTR (except 1010, 1111, 2130); BSCI (except 1111); CHEM (except 1010, 1020, 1601, 1602, 1111); EES (except 1080, 1111, 2150); MATH 2410 and above; NSC 2201, 3269, 4961; PHYS above 2000; PSY 2100, 3780

9. Open Elective (3 hours).

Undergraduates in computer engineering may apply the pass/fail option only to courses taken as open electives subject to the school requirements for pass/fail.

**Computer engineering majors may earn credit for only one of BME 3300 and BME 3302.

Computer Engineering Areas of Concentration

Embedded Systems	Computing Systems and Networks	Intelligent Systems and Robotics
ECE 4257	CS 3265	CS 4260
ECE 4275	CS 3274 (DE)	CS 4269 (DE)
ECE 4356 (DE)	CS 3281	ECE 4257
ECE 4358 (DE)	CS 3282 (DE)	ECE 4353 (DE)
ECE 4376 (DE)	CS 4266 (DE)	ECE 4354 (DE)
ECE 4377 (DE)	CS 4278 (DE)	ECE 4358 (DE)
ECE 4385 (DE)	CS 4279 (DE)	ME 4271
CS 3274 (DE)	CS 4383 (DE)	
	CS 4284 (DE)	
	CS 4285	
	CS 4288 (DE)	
	ECE 4371 (DE)	

(DE) designates a Design Domain Expertise course

Specimen Curriculum for Computer Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
ECE 2112	Circuits I	3	–
ECE 2123, 2123L	Digital Systems and Laboratory	4	–
ECE 2218, 2218L	Microcontrollers and Laboratory	–	4
CS 2201	Program Design and Data Structures	3	–
CS 3251	Intermediate Software Design	–	3
	Liberal Arts Core	–	3
		17	14
JUNIOR YEAR			
MATH 2810	Probability and Statistics for Engineering	-	3
ES 2100W	Technical Communications	3	–
ECE 4376, 4376L	Embedded Systems and Laboratory	4/3	–
or CS 3281	Principles of Operating Systems I		
ECE 2213, 2213L	Circuits II and Laboratory Signals and Systems	4/3	–
or ECE 3214			
	CMPE Program Electives ‡	3	6
	Liberal Arts Core	3	3
	Technical Electives	–	3
		15-17	15
SENIOR YEAR			
ECE 4950	Program and Project Management for EECE	3	–
ECE 4951	Electrical and Computer Engineering Design	–	3
ECE 4959	Senior Engineering Design Seminar	1	–
	CMPE Program Electives ‡	3	3
	Liberal Arts Core	3	3
	Technical Electives	6	3
	Open Electives	–	3
		16	15

‡ As described in “Computer Engineering Degree Requirements” subsection 6. At least one design domain expertise (DE) course required prior to ECE 4951.

Minor in Computer Engineering

The minor in computer engineering is available to all students except those majoring or minoring in electrical engineering or computer science. The computer engineering minor requires a minimum of 17 hours of EECS courses, including the completion of all laboratory corequisites for courses selected for the minor, distributed as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Digital Systems: ECE 2123, 2123L	4 hours
3. Microcontrollers: ECE 2218, 2218L	4 hours
4. ECE 2112 or CS 2201 or CS 2204	3 hours
5. At least 3 hours of ECE or CS courses numbered 2000 or above (excluding ECE 3860, 3861 or CS 3860, 3861)	3 hours
Total:	17–18 hours

Computer Science

Undergraduate Honors Program

Curriculum Requirements

Specimen Curriculum for Computer Science

Second Major in Computer Science for Non-Engineering Students

Computer Science Minor

CHAIR Xenofon D. Koutsoukos

ASSOCIATE CHAIR Julie L. Johnson, Douglas Schmidt

DIRECTOR OF UNDERGRADUATE STUDIES Julie L. Johnson

DIRECTOR OF GRADUATE STUDIES Abhishek Dubey (MS), Taylor T. Johnson (PhD)

DIRECTOR OF DISTANCE LEARNING GRADUATE STUDIES Dana Zhang

DIRECTOR OF GRADUATE RECRUITING Ipek Oguz

PROFESSORS EMERITI Charlotte F. Fischer, J. Michael Fitzpatrick, Stephen R. Schach

PROFESSORS Gautam Biswas, Robert E. Bodenheimer, Jr., Benoit M. Dawant, Aniruddha S. Gokhale, Gábor Karsai, Xenofon D. Koutsoukos, Bennett Landman, Akos Ledeczi, Bradley A. Malin, Sandeep Neema, Padma Raghavan, Nilanjan Sarkar, Douglas C. Schmidt, Nabil Simaan, Jonathan Sprinkle, Keivan Stassun, Janos Sztipanovits, Jules White, Daniel Work

RESEARCH PROFESSORS Robert Laddaga, Zhaohua Ding

PROFESSORS OF THE PRACTICE Graham S. Hemingway, Julie L. Johnson, Gerald H. Roth, Jesse Spencer-Smith

ADJUNCT PROFESSORS Charles Easttom, Amit Misra, Jesse Spencer-Smith

ASSOCIATE PROFESSORS Hiba Baroud, Abhishek Dubey, Douglas H. Fisher, Ivelin S. Georgiev, Taylor T. Johnson, Thomas Lasko, Yu Sun, Pamela Wisniewski, Thilo Womesdorf

ASSOCIATE PROFESSOR EMERITUS Jeremy P. Spinrad

ASSOCIATE PROFESSORS OF THE PRACTICE Daniel Arena, Vikash Singh, Robert Tairas

ASSISTANT PROFESSORS Thomas Beckers, Matthew Berger, Luca Bonomi, Catie Chang, You Chen, Tyler Derr, Daniel

Fabbri, Yu Huang, Yuankai Huo, David Hyde, Soheil Kolouri, Maithilee Kunda, Forrest Laine, Kevin Leach, Meivi Ma, Daniel Moyer, Jack H. Noble, Ipek Oguz, Mika Rubinov, Bryan Ward, Wei-Qi Wei, James Weimer, Jie Ying Wu, Zhijun Yin, Maizie Zhou

RESEARCH ASSISTANT PROFESSOR Gayathri Narasimham

ASSISTANT PROFESSORS OF THE PRACTICE Gina Bai, Charreau Bell, Shervin Haiiamini, Md. Kamrul Hasan, Dana Zhang

ADJUNCT ASSISTANT PROFESSORS Yogesh Barve, Ronald Hedgecock, Marcus Quinones-Grueiro, Adrienne Slaughter, Hamilton Turner

COURSES OFFERED: CS

The program in computer science blends scientific and engineering principles, theoretical analysis, and actual computing experience to provide undergraduate students with a solid foundation in the discipline. Emphasis is on computing activities of both practical and intellectual interest, and on theoretical studies of efficient algorithms and the limits of computation. Computer facilities are available for class assignments, team projects, and individual studies.

Students are challenged to seek original insights throughout their study. Working in teams, participating in summer internships, supporting student professional organizations, and developing interdisciplinary projects are strongly encouraged.

The computer science major provides an excellent back- ground for medical studies, and the flexibility provided by its many open electives allows students to prepare for medical school while earning a degree in computer science with a normal load in four years. Interested students should discuss their plans with their computer science adviser in the fall of their first year.

In addition to the bachelor of science, the master of science and doctor of philosophy are also awarded in computer science. Computer Science majors in the School of Engineering are encouraged to consider a double major or minor to complement their CS studies. Popular double majors include Mathematics, Economics, HOD and Physics. The second major in Computer Science is accessible to students outside of the School of Engineering. Second major requirements can be found following the engineering specimen curriculum below.

Undergraduate Honors. Honors in Computer Science provides recognition for select undergraduates who have experienced advanced study in computer science. Students who have an overall GPA of 3.5 or better, a GPA of 3.5 or better in computer science classes, and six hours of any combination of undergraduate research (CS 3860 and 3861) and courses at or above the 6000-level will be granted honors in the computer science program. The diploma designation is Honors in Computer Science.

Curriculum Requirements

The B.S. in computer science requires a minimum of 120 hours, distributed as follows:

1. Mathematics (17-19 hours). Required components:
    a. Calculus/Linear algebra (14–16 hours). A sequence selected from the following:
        i. MATH 1300, 1301, 2300, and one of 2410 or 2600, or
        ii. MATH 1300, 1301, 2500, 2501
    b. Statistics/Probability (3 hours): MATH 2810, 2820, or 3640.
2. Science (12 hours). To be selected from the following list and include at least one laboratory course: BSCI 1100, 1100L, 1510, 1510L, 1511, 1511L, 2218, 2219; CHEM 1601, 1601L, 1602, 1602L; EES 1510, 1510L; MSE 1500, 1500L; PHYS 1601, 1601L, 1602, 1602L. Advanced Science Courses may be substituted by special

permission. Recommended: CHEM 1601, 1601L; PHYS 1601, 1602.

3. Introduction to Engineering (3 hours): ES 1401, 1402, 1403.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Computer Science Core (25 hours).
    - Software/Problem Solving: CS 1101 or 1104, and CS 2201, 3251, 3270.
    - Hardware/Systems: CS or ECE 2281, CS or ECE 2281L, CS 3281.
    - Foundations: CS 2212, 3250.
6. Computer Science Depth (15 hours). To be selected from computer science courses numbered 3000 or higher (except CS 3262); ECE 4353, 4354, 4375, and no more than two from MATH 3320, 3620, 4600, 4620. A maximum of 6 hours may come from CS 3860, 3861.
7. Computer Science Project (3 hours). To be selected from CS 3892, 4239, 4249, 4269, 4279, 4287, 4289.
8. Computer Science Seminar (1 hour). CS 4959.
9. Technical Electives (6 hours). To be selected from courses numbered 2000 or higher within the School of Engineering (except 2860 in any program, ENGM 2440, ENGM 4800, ES 2700, ES 3884, and CS courses numbered below 3000); or courses numbered 2000 or higher in the College of Arts and Science listed in the mathematics and natural science (MNS) AXLE distribution requirements.
10. Open Electives (18–20 hours).
11. Computers and Ethics (3 hours) CS 1151. May be used to satisfy three hours from the Liberal Arts Core (#4) or Open Electives (#10). May not be taken on a pass/fail grading basis by CS majors or minors.
12. Writing Component (3 hours). At least one “W”-designated course or 1111 course in the English Language must be included from the Liberal Arts Core (#4), Technical Electives (#9), or Open Electives (#10).

Undergraduates in computer science may apply the pass/fail option only to courses taken as open electives, technical electives, or part of the liberal arts core, subject to the school requirements for pass/fail.

Specimen Curriculum for Computer Science

		Semester hours	
FIRST YEAR		FALL	SPRING
CHEM 1601, 1601L	General Chemistry and Laboratory	4	–
PHYS 1601, 1601L	General Physics I and Laboratory	–	4
MATH 1300	Accelerated Single-Variable Calculus I	4	–
MATH 1301	Accelerated Single-Variable Calculus II	–	4
ES 1401-1403	Introduction to Engineering	3	–
CS 1101	Programming and Problem Solving	–	3
	Liberal Arts Core	–	3
	Open Electives	3	–
		14	14
SOPHOMORE YEAR			
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
MATH 2300	Multivariable Calculus	–	3
CS 2201	Program Design and Data Structures	3	–
CS 2212	Discrete Structures	3	–
CS 2281, 2281L	Computer Architecture	–	4
CS 3251	Intermediate Software Design	–	3
	Liberal Arts Core	–	3
	Open Electives	6	3
		16	16
JUNIOR YEAR			
MATH 2410	Methods of Linear Algebra	–	3
MATH 2820	Introduction to Probability and Mathematical Statistics	3	–
CS 3250	Algorithms	–	3
CS 3270	Programming Languages	3	–
CS 3281	Principles of Operating Systems I	3	–
	Computer Science Depth	–	3
	Liberal Arts Core	3	3
	Open Electives (ES 2100W recommended)	2	3
		14	15
SENIOR YEAR			
CS 4959	Computer Science Seminar	1	–
	Computer Science Project	–	3
	Computer Science Depth	9	3
	Technical Electives	3	3
	Liberal Arts Core	3	3
	Open Electives	–	3
		16	15

Second Major in Computer Science for Non-Engineering Students

The second major in computer science for students enrolled outside the School of Engineering requires 40 hours comprising items 5 and 7 of the curriculum requirements listed above as well as 12 hours of course work as described in item 6.

Courses taken toward the second major may not be taken pass/fail.

Computer Science Minor

The minor in computer science is available to all students except those majoring in computer engineering. The minor in computer science requires 15–16 hours of computer science courses as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Discrete Structures: CS 2212	3 hours
3. Intermediate Computer Concepts: CS 2201	3 hours
4. CS 2281 (and 2281L) or ECE 2281 (and 2281L), or CS 3250, or CS 3251	3-4 hours
5. One additional CS course numbered 3000 or above (excluding CS 3262)	3 hours
Total:	15-16 hours

Digital Fabrication

DIRECTOR Scott A. Guelcher

Affiliated Faculty

PROFESSORS Scott A. Guelcher (Chemical and Biomolecular Engineering), Florence Sanchez (Civil Engineering)

ASSOCIATE PROFESSOR Taylor Johnson (Computer Science)

ASSOCIATE PROFESSOR OF THE PRACTICE Thomas J. Withrow (Mechanical Engineering)

RESEARCH ASSOCIATE PROFESSORS Kevin C. Galloway (Mechanical Engineering), W. Timothy Holman (Electrical and Computer Engineering)

ASSISTANT PROFESSORS OF THE PRACTICE Romina Del Bosque (Biomedical Engineering), David C. Florian (Chemical and Biomolecular Engineering)

COURSES OFFERED: DF

Industry 4.0, or the fourth industrial revolution, is rapidly changing how companies manage their supply chains and manufacture their products. New digital and physical technologies, including advanced materials, additive manufacturing, and software packages that employ machine learning to optimize both the geometry and function of parts and processes, have reached a level performance that enables their widespread integration throughout manufacturing operations. Digital fabrication is the process of converting ideas to physical products through computer-driven design and manufacturing. Every aspect of the design process can be simulated, from materials selection to the toolpaths used to manipulate those materials. Consequently, digital fabrication technologies more efficient manufacturing of prototypes and commercial parts. This minor is intended for students who are interested in 3D printing, computer aided design (CAD), and product development.

The minor in Digital Fabrication prepares students for this area by providing both classroom and hands-on instruction in advanced technologies used to prototype physical devices through computer-controlled design and manufacturing. Students will learn how to scale-up production of their prototypes through both traditional and additive-based manufacturing techniques. Students will gain experience through foundational courses for the minor and expand their application through electives often related to their major. The Vanderbilt makerspace ecosystem

provides students in the minor with hands-on experiences that allow them to design, construct, and iterate prototype devices using in-house state-of-the-art equipment. This laboratory component enhances the competitiveness of students to both employers and graduate schools.

DIGITAL FABRICATION MINOR

The minor in digital fabrication requires 15 credit hours, distributed as follows:

1. Programming (3 hours): One of CS 1100, DS 1100, CS 1103, CS 1104, or CS 2201.
2. Prototyping Core (6 hours): DF 2100, CHBE 4200.
3. Elective courses (6 hours). To be selected from the following list of approved subjects, which may include no more than one (3 hour) ENGM course:

School of Engineering:

BME 2210: Biomaterial Manipulation

BME 3500: Biomedical Materials: Structure-Property Relationships and Applications

BME 3750: Low Resource Bioengineering

BME 3800: 3D Computer Drafting in Design

BME 4100: Lasers in Surgery and Medicine

BME 4250: Mobile Application Design for Healthcare

BME 4530: Synthetic Biology and Cell Design

CE 4211: Mechanics of Composite Materials

CE 4425: Building Information Modeling

CHBE 4840: Synthesis and Applications of 2D Nanomaterials

CHBE 4850: Semiconductor Materials Processing

CHBE 4870: Polymer Science and Engineering

CS 3258: Introduction to Computer Graphics

CS 3259: Computer Animation Design and Technology

CS 3270: Programming Languages

CS 3274: Modeling and Simulation

CS 4249: Projects in Virtual Reality Design

DF 3860: Undergraduate Research in Digital Fabrication

ECE 2123/2123L: Digital Systems

ECE 2218/2218L: Microcontrollers

ECE 4275: Microelectronic Systems

ECE 4354: Computer Vision

ECE 4376: Embedded Systems

ECE 4377: FPGA Design

ECE 4385: VLSI Design

ENGM 3300: Technology Assessment and Forecasting

ENGM 3600: Technology-Based Entrepreneurship

ME 1151: Laboratory in Machining

ME 2160: Introduction to Mechanical Engineering Design

ME 3202: Machine Analysis and Design

ME 3273: How to Make (Almost) Anything and Make it Matter

ME 4251: Modern Manufacturing Processes

College of Arts and Science:

ANTH 3867 Digital Archaeology

ARTS 1400: Ceramics

ARTS 2400: Ceramics II

CHEM 3630: Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modifications

CSET 3257: Virtual Reality Design

MHS 2240: Bionic Bodies, Disability Cultures

PHYS 2660: Experimental Nanoscale Fabrication and Characterization

Electrical and Computer Engineering

Undergraduate Honors Program

Facilities

Curriculum Requirements

Electrical and Computer Engineering Areas of Concentration

Specimen Curriculum for Electrical and Computer Engineering

Minor in Electrical and Computer Engineering

CHAIR Bennett A. Landman

ASSOCIATE CHAIR Robert A. Reed

DIRECTOR OF UNDERGRADUATE STUDIES W. Timothy Holman

DIRECTOR OF GRADUATE STUDIES Richard Alan Peters II

DIRECTOR OF GRADUATE RECRUITING Jack H. Noble

PROFESSORS EMERITI Arthur J. Brodersen, James A. Cadzow, Jimmy L. Davidson, J. Michael Fitzpatrick, Kenneth F. Galloway, Dennis G. Hall, Robert W. House, Kazuhiko Kawamura, Robert A. Weller, Francis M. Wells, Edward J. White, James E. Wittig

PROFESSORS Bharat L. Bhuva, Robert E. Bodenheimer Jr., Joshua D. Caldwell, Benoit M. Dawant, Mark Does, Philippe M. Fauchet, Daniel M. Fleetwood, Michael Goldfarb, William A Grissom, Weng Poo Kang, Gábor Karsai, Xenofon D. Koutsoukos, Bennett A. Landman, Akos Ledeczi, Lloyd W. Massengill, Sandeep Neema, Sokrates T. Pantelides, Robert A. Reed, Nilanjan Sarkar, Douglas Schmidt, Ronald D. Schrimpf, Janos Sztipanovits, Robert J. Webster III, Sharon M. Weiss

PROFESSOR OF THE PRACTICE Walter Collett

RESEARCH PROFESSORS Michael L. Alles, Theodore A. Bapty, Zhaohua Ding, James McBride, Arthur F. Witulski

ASSOCIATE PROFESSORS Audrey K. Bowden, Abhishek Dubey, Taylor Johnson, Richard Alan Peters II, Jason G. Valentine, Greg Walker, D. Mitchell Wilkes

RESEARCH ASSOCIATE PROFESSORS W. Timothy Holman, Jeffrey S. Kauppila, Brian D. Sierawski

ASSISTANT PROFESSORS David Braun, Catie Chang, Mona Ebrish, Dariot Englot, Yuankai Huo, Justus Ndukaife, Jack H. Noble, Ipek Oguz

RESEARCH ASSISTANT PROFESSORS Shunxing Bao, Christine McGahan, Kurt Schilling, David Smith

ADJOINT PROFESSORS Arnold Burger, William Hofmeister, Steven Kosier

ADJOINT ASSOCIATE PROFESSOR Pierre-Francois D'Haese

ADJOINT ASSISTANT PROFESSORS Shuren Hu, Arto Javaninen, Stephanie Weeden-Wright

ADJUNCT PROFESSORS Ashok Choudhury, Orest Glembocki, Roberg Magruder

ADJUNCT ASSOCIATE PROFESSOR John Hutson

ADJUNCT ASSISTANT PROFESSORS Amy Kauppila, Andrew L. Sternberg

ADJUNCT INSTRUCTOR John Beck

INSTRUCTOR Ashwaq Amat

POSTDOCTORAL RESEARCH SCHOLARS Effat Farhana, Andrew McNeil

COURSES OFFERED: ECE

The study of electrical and computer engineering has been primarily responsible for the information technology revolution that society is experiencing. The development of large-scale integrated circuits has led to the development of computers and networks of ever-increasing capabilities. Computers greatly influence the methods used by engineers for designing and problem solving.

The curriculum of the electrical and computer engineering major is multifaceted. It provides a broad foundation in mathematics, physics, and computer science and a traditional background in circuit analysis and electronics.

Several exciting areas of concentration are available, including photonics and nanomaterials, microelectronics, embedded computing, cyber-physical systems, signal and data processing and medical systems. Students receive an education that prepares them for diverse careers in industry and government and for postgraduate education.

Undergraduate Honors Program. With faculty approval, junior and senior students may be accepted into the Honors Program. To achieve honors status, the student must:

1. achieve and maintain a minimum GPA of 3.5.
2. complete 3 hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861) with final written report.
3. complete 6 hours of ECE program elective credit from the following list:
    a. up to 3 additional hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861), or
    b. Design Domain Expertise courses beyond the one course required by the program, or
    c. 5000-level ECE or CS courses.

The diploma designation is Honors in Electrical and Computer Engineering.

Facilities. Electrical and computer engineering supports undergraduate laboratories emphasizing the principal areas of the disciplines: analog and digital electronics, microcomputers, microprocessors, microelectronics, and instrumentation. In addition, several specialized facilities are available for graduate research: the advanced carbon nanotechnology and diamond labs, the Institute for Software Integrated Systems, the Institute for Space and Defense Electronics, the Medical Image Processing Laboratory, the Center for Intelligent Systems and Robotics Laboratories, the Embedded Computer Systems Laboratory, and biomedical, biosensing, and photonics laboratories.

The work in electrical and computer engineering is supported by a variety of computers and networks, including the high-performance computing facilities of the Advanced Computing Center for Research and Education. Vanderbilt is one of the founding partners in the Internet II initiative.

Curriculum Requirements

The B.E. in electrical and computer engineering requires a minimum of 122 hours, distributed as follows:

1. Mathematics (18 hours). Required courses: MATH 1300, 1301, 2300, 2400, 2810.
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L; MSE 1500, 1500L or CHEM 1602, 1602L.
3. Engineering Fundamentals (6 hours). Required courses: ES 1401, 1402, 1403, ES 2100W.
4. Culminating Design Experience (7 hours). Required courses: ECE 4950, 4951, 4959.
5. Electrical and Computer Engineering Core (21 hours). Required courses: CS 1100 or 1101 or 1104; CS 2201 or 2204; ECE 2112, 2112L, 2123, 2123L (or CS 2123, 2123L), ECE 2214, 3235, 3235L.
6. Electrical and Computer Engineering Electives (21 hours). To comprise:
    a. At least 15 hours selected from the Gateway courses and ECE and CS Depth courses listed below.
    b. other courses listed in the Electrical and Computer Engineering Areas of Concentration below, or ECE or CS courses numbered above 3000 (including ECE 3860, 3861 and CS 3860, 3861).

Additional requirements for (a) and (b) include:

- at least 9 hours completed in one of the four Areas of Concentration listed below.
- at least 6 additional hours completed in a second distinct Area of Concentration listed below.
- at least one Design Domain Expertise course as designated below taken before ECE 4951.
- courses with associated labs require completion of both the lecture and lab portions to count as Electrical and Computer Engineering Electives.
- courses count in only one Area of Concentration; they cannot be double counted

7. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.

8. Technical electives (12 hours).

    a. (6-12 hours). At least 6 hours must be taken from this list of approved engineering technical electives: (excluding all School of Engineering courses numbered 2860); BME; CHBE (except 2150, 2900W); CE; CS (except 1000, 1101, 1103, 1104, 1151); ECE (above basic requirement in sections 5 and 6 above); ENGM 3010; ENVE; ES 3300; ME; MSE (except 1500, 1500L); NANO 3000; SC 3250, 3260
    b. (0–6 hours). Up to 6 hours may be taken from this list of optional technical electives: ENGM 2160, 2210, 3000, 3100, 3300, 3650, 4500; MSE 1500, 1500L (if CHEM 1602, 1602L is used for basic science requirement); Astronomy (except 1010, 1111, 2130); Biological Sciences (except 1111); Chemistry (except 1010, 1020, 1601, 1602, 1111); Earth and Environmental Sciences (except 1080, 1111, 2150); Mathematics 2410 and above; Neuroscience 2201, 3269, 4961; Physics above 2000; Psychology 2100, 3780

9. Open Elective (3 hours).

Electrical and Computer Engineering Areas of Concentration

–	Photonics & Nanomaterials	Microelectronics	Embedded Computing & Cyber-Physical Systems	Signal, Image, Data, and Medical Systems
Gateway Courses†	ECE 3233	ECE 3233	CS 3251 ECE 2218/2218L‡ ECE 2281/2281L‡	ECE 4356* ECE 4363
ECE and CS Depth Courses	ECE 4283 ECE 4284 ECE 4288* ECE 4334* ECE 4335	ECE 4267 ECE 4268 ECE 4275 ECE 4283 ECE 4284 ECE 4287 ECE 4289 ECE 4334* ECE 4335 ECE 4380* ECE 4385*	CS 3265 CS 3274* CS 4277 CS 4278* CS 4279* CS 4284* CS 4285 CS 4288* ECE 4257 ECE 4275 ECE 4356* ECE 4358* ECE 4371* ECE 4375/4375L‡* ECE 4377* ECE 4383‡ ECE 4385*	CS 3251 CS 4260 CS 4262 CS 4266* CS 4269* ECE 4252 ECE 4286 ECE 4353* ECE 4354*
Non-ECE and Non-CS Depth Courses	BME 4100 ME 4265 NANO 3000 PHYS 2660 PHYS 2210 PHYS 3640		ME 4271	BME 3302 BME 4400 BME 4420 ME 3204

†Gateway courses provide recommended background and/or prerequisites for the Area of Concentration Depth courses.

*Designates a Design Domain Expertise course.

‡Indicates a crosslisted course also offered by the Department of Computer Science.

Double majors have special curricula that require more than 122 hours and a different distribution of electives. See the ECE webpage or the ECE double major adviser for these curricula.

A double major in Electrical and Computer engineering and Biomedical Engineering is offered as a unitary BME-ECE curriculum, which is described in the Biomedical Engineering section of the catalog under its curriculum requirements. It requires a minimum of 130 semester hours.

Undergraduates in electrical and computer engineering, including double majors in electrical and computer engineering, may apply the pass/fail option only to courses taken as open electives subject to the school requirements for pass/fail.

Specimen Curriculum for Electrical and Computer Engineering

		Semester hours	
		FALL	SPRING
SOPHOMORE YEAR			
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CS 2201 or 2204	Program Design and Data Structures	3	–
ECE 2112, 2112L	Circuits and Laboratory	4	–
ECE 2123, 2123L	Digital Systems and Laboratory	–	4
ECE 2214	Analog Circuits and Systems	–	3
	Liberal Arts Core	3	3
	ECE Program Elective or Technical Elective‡	–	3
		17	17
JUNIOR YEAR			
MATH 2810	Probability and Statistics for Engineering	3	–
ES 2100W	Technical Communications	–	3
ECE 3235, 3235L	Electronics I and Laboratory	4	–
	ECE Program Electives‡‡	3	6
	Technical Elective	–	3
	Technical Elective or ECE Program Elective‡	3	–
	Liberal Arts Core	3	3
		16	15
SENIOR YEAR			
ECE 4950	Program and Project Management for ECE	3	–
ECE 4951	Electrical and Computer Engineering Design	–	3
ECE 4959	Senior Engineering Design Seminar	1	–
	ECE Program Electives‡‡	6	3
	Liberal Arts Core	3	–
	Technical Electives	3	3
	Open Elective	–	3
		16	12

‡CS 3251 (Intermediate Software Design) is recommended in spring of the sophomore year as preparation for

advanced computer science courses, with a technical elective taken in fall of the junior year. Otherwise, students may choose a technical elective in spring of the sophomore year and an ECE program elective in fall of the junior year.

‡‡As described in Electrical and Computer Engineering Degree Requirements section 6. At least one Design Domain Expertise (DE) course required prior to ECE 4951.

Minor in Electrical and Computer Engineering

The minor in electrical and computer engineering is available to all students except those majoring or minoring in computer engineering or electrical and computer engineering. The electrical and computer engineering minor requires a minimum of 17 hours of courses, including the completion of all laboratory corequisites for courses selected for the minor, distributed as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Digital Systems: (ECE 2123, 2123L or CS 2123, 2123L) or Computer Architecture: (ECE 2281, 2281L or CS 2281, 2281L)	4 hours
3. Circuits: ECE 2112, 2112L	4 hours
4. At least 6 additional hours of ECE courses numbered above 2000 (excluding ECE 3860, 3861)	6 hours
Total:	17 hours

General Engineering

Engineering Science Major (Bachelor of Science)

Engineering Management

Communication of Science and Technology

Minors

Curriculum Requirements

Engineering Management Minor

DIRECTOR Yiorgos Kostoulas

PROFESSORS OF THE PRACTICE David A. Berezov, Graham S. Hemingway, Yiorgos Kostoulas, David A. Owens, Kenneth R. Pence, Christopher J. Rowe

ASSOCIATE PROFESSORS OF THE PRACTICE Graham S. Hemingway, Grayson McClain

ASSISTANT PROFESSORS OF THE PRACTICE Lynne Cooper, Courtney L. Johnson

LECTURER Julie S. Birdsong

ADJOINT PROFESSORS OF THE PRACTICE: John A. Bers, J. Caleb Clanton

The Division of General Engineering administers the engineering science major, the engineering management minor, and the first-year introduction to engineering course. The division oversees non-traditional engineering study and advises students on course selection to meet specific career goals that traditional engineering majors may not provide.

COURSES OFFERED: ENGM, ES

Engineering Science Major (Bachelor of Science)

The engineering science major is flexible and interdisciplinary—offering students the opportunity to select a program of study to meet special interests or objectives. Many students choose a program of study in engineering management, communication of science and technology, various engineering concentrations, environmental science or materials science; however, students may develop unique plans of study to specialize in areas for which facilities and faculty competence exist but which are not covered within a single existing degree program at Vanderbilt. Engineering science graduates may establish careers in engineering or science, interface with engineers (e.g., in marketing and sales), or use their analytical and problem-solving skills to build future professional careers. Defined areas of concentration exist in engineering management, communication of science and technology, secondary education, and materials science and engineering. Individual programs have been developed for students interested in careers in engineering mathematics, environmental engineering, transportation engineering, teaching, technical communications, and other areas requiring nontraditional combinations of engineering courses. Because of the flexible nature of the engineering science programs of study, accreditation has not been sought for these programs of study, and engineering science majors will not qualify for engineering licensure in most states.

Engineering Management. Engineering management is an interdisciplinary program of study designed to give students the tools to manage technology development and innovation, to enhance manufacturing quality and productivity in a competitive international environment, and to implement these objectives successfully in an organization. Engineering management links engineering, science, and the management disciplines. In addition to the core science and math courses required of all engineering students, topics of study include entrepreneurship, human resources management, finance in technology-based organizations, technology strategy, communications, and operations.

Communication of Science and Technology. Many careers that are attractive to graduates of the engineering science program require the communication of engineering and science to people who are not technically trained. The Communication of Science and Technology interdisciplinary program prepares engineering students for careers in areas such as technical consulting, high-technology marketing and sales, environmental law, and journalism. The program combines traditional engineering and science courses with communications and humanities courses in a flexible curriculum. Engineering science majors may select from a set of program electives identified by the faculty committee of the School of Engineering and the College of Arts and Science that supervises the program.

Minors. Students may also pursue a minor consisting of at least five courses of at least three credit hours within a recognized area of knowledge. Minors are offered in engineering management, materials science and engineering, computer engineering, electrical engineering, computer science, scientific computing, environmental engineering, energy and environmental systems, nanoscience and nanotechnology, and most disciplines within the College of Arts and Science. Students must declare their intention to pursue minors by completing forms available in the Office of Academic Services of the School of Engineering.

Curriculum Requirements

The B.S. in engineering science requires a minimum of 121 hours, distributed as follows:

1. Basic Science (16 hours). CHEM 1601, 1601L plus 12 hours from BSCI 1510, 1510L, 1511, 1511L; CHEM 1602, 1602L; PHYS 1601, 1601L, 1602, 1602L; or MSE 1500, 1500L with two courses in a single discipline.
2. Mathematics (14 hours). MATH 1300, 1301, 2300 and 3 hours from MATH courses numbered 2400 and above.
3. Engineering (43 hours).
    a. Engineering Fundamentals (12 hours): CS 1100 or 1101 or 1103 or 1104; ES 1401, 1402, 1403, 2100W; ENGM 3700.
    b. Engineering Core (12 hours): To be selected from courses in any of the following disciplines: BME, CHBE, CE, CS, DF, ECE, ENVE, MSE, ME, NANO, and SC (except BME 1105; CS 1000, 1151; and any School of Engineering courses numbered 2860).
    c. Engineering Electives (15 hours): To be selected from any School of Engineering courses (including ES and ENGM), except BME 1015; CS 1000, 1151; ES 1115, 2700, 3884; ENGM 2440, 4800; and any School of Engineering courses numbered 2860.

    d. Senior Capstone (4 hours): ES 4951, ES 4959.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Open Electives (6 hours).
6. Program Concentration (24 hours). In consultation with the academic adviser, each student must identify a meaningful sequence of courses, not counting certain introductory-level courses, that directly contributes to meeting stated career goals. Program concentrations are approved by the academic adviser and the program director in advance and become part of the student's degree audit.

The preparation provided by the program concentration, together with a solid foundation in basic engineering courses, provides the engineering science student a strong and useful career base.

No more than 24 credit hours of business-related course work (BUS, BUSA, ENGM, FNEC, MGRL) may be applied to the ES degree program. Only one business-related minor (BUS, ENGM, FNEC, MGRL, HOD) may count to a student's academic program. No more than 6 credit hours of courses numbered 3840 to 3879 in any program may be applied to the ES degree program.

Undergraduates in engineering science may apply the pass/ fail option only to courses taken as liberal arts core or open electives, subject to the school requirements for pass/fail. UNIV courses are eligible for open elective credit only. Credit for the senior capstone sequence (4 hours) satisfies the Immersion Vanderbilt requirement.

Engineering Management Minor

Engineering management is an interdisciplinary program of study designed to expose engineering students to the concepts and theories of the management of the engineering function, the critical elements of technology development and innovation, and the implementation of such ideas in manufacturing, engineering, and technology environments. Approximately two-thirds of all engineers spend a substantial portion of their professional careers as managers. In the complex, competitive world of technology-driven industry, skilled engineers who understand the essential principles of management and business have a competitive advantage.

The program in engineering management prepares students to work effectively in developing, implementing, and modifying technologies and systems. The ability to manage and administer large technical engineering and research projects and budgets will continue to challenge engineering management skills.

The engineering management minor is designed to provide a working knowledge of the fundamentals of management and innovation.

The minor program consists of 15 hours of course work, some of which may be taken as electives associated with the student's major program. Five courses are required: four core courses and the remaining course chosen from a list of electives.

Program Requirements

The student must take the following four courses:

ENGM 2210 Technology Strategy

ENGM 2440 Applied Behavioral Science

ENGM 3010 Systems Engineering

ENGM 3700* Program and Project Management

The student must select one of the following courses:

ENGM 2160 Engineering Economy

ENGM 3100 Accounting and Finance for Engineers

ENGM 3200 Technology Marketing

ENGM 3300 Technology Assessment and Forecasting

ENGM 3350 Organizational Behavior

ENGM 3600 Technology-Based Entrepreneurship

ENGM 3650 Operations and Supply Chain Management

ENGM 4500 Product Development

CE 4300 Reliability and Risk Case Studies

ENVE 4305 Enterprise Risk Management

ES 2900 Engineering and Public Policy

*Students majoring in civil or electrical and computer engineering may substitute CE 4400 or ECE 4950 for ENGM 3700.

Materials Science and Engineering

Materials Science and Engineering Minor

DIRECTOR OF UNDERGRADUATE STUDIES Bridget R. Rogers

DIRECTOR OF GRADUATE STUDIES Joshua D. Caldwell

Affiliated Faculty

PROFESSORS Joshua D. Caldwell (Mechanical Engineering) David E. Cliffel (Chemistry), Craig L. Duvall (Biomedical Engineering), Philippe M. Fauchet (Electrical and Computer Engineering), Daniel M. Fleetwood (Electrical and Computer Engineering), Todd D. Giorgio (Biomedical Engineering), Scott A. Guelcher (Chemical and Biomolecular Engineering), Richard F. Haglund, Jr. (Physics), G. Kane Jennings (Chemical and Biomolecular Engineering), Weng P. Kang (Electrical and Computer Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), Deyu Li (Mechanical Engineering), Sandra J. Rosenthal (Chemistry), Florence Sanchez (Civil Engineering), Jason G. Valentine (Mechanical Engineering), Sharon M. Weiss (Electrical and Computer Engineering)

ASSOCIATE PROFESSORS Leon Bellan (Mechanical Engineering), Janet E. MacDonald (Chemistry), Bridget R. Rogers (Chemical and Biomolecular Engineering), Greg Walker (Mechanical Engineering)

RESEARCH ASSOCIATE PROFESSOR Enxia Zhang (Electrical and Computer Engineering)

ASSISTANT PROFESSORS Piran Kidambi (Chemical and Biomolecular Engineering), Carlos Silvera Batista (Chemical and Biomolecular Engineering)

COURSES OFFERED: MSE

Materials have been key to the solutions to many societal problems. Many of the barriers to widespread incorporation of alternate and renewable energy, from higher-capacity, more robust, less expensive batteries for energy storage, to high efficiency/low cost solar devices, involve the need for new materials. Materials will play an

ever-increasing role in health care. New medical devices, drug delivery systems, and synthetic biological tissue are just a few of the health-related applications in need of new materials for their success. In addition, materials challenges are front and center in the ever-evolving areas of electronic devices. Engineers and scientists with knowledge of materials science and engineering concepts are needed to address these and many more materials challenges.

Materials science and engineering is an interdisciplinary program with affiliated faculty from all engineering disciplines, as well as faculty from chemistry, and physics. Two undergraduate options involving materials science and engineering are available. Students pursuing a B.S. in engineering science may choose a program concentration in materials science and engineering. This option requires the student to take MSE 1500, 1500L, and 2500, and other materials science and engineering elective courses to complete their 24 hours of engineering program electives. Students pursuing a B.E. in an engineering discipline can earn a minor in materials science and engineering.

Materials Science and Engineering Minor

The minor in materials science and engineering provides the student with an understanding of engineering materials. It complements and adds to the student's major in one of the engineering disciplines, exposing the student to an interdisciplinary approach to problem solving. The minor program in materials science and engineering requires 16 hours of program courses, of which 7 hours are devoted to MSE 1500, 1500L and MSE 2500. No more than 10 hours below the 2500 level may be applied to the minor.

Program Requirements

MSE 1500, 1500L	Materials Science I and Laboratory
MSE 2500	Materials Science II

The remaining 9 hours can be chosen from the following list of courses. Please contact the MSE Director of Undergraduate Studies with requests to accept courses not on this list for elective credit.

MSE 3860	Undergraduate Research
MSE 3889-3890	Special Topics
BME 2100	Biomechanics
BME 3500	Biomedical Materials: Structure, Property, and Applications
BME 4200	Principles and Applications BioMicroElectro Mechanical Systems (BioMEMS)
BME 4500	Nanobiotechnology
CHBE 4840	Synthesis and Applications of 2D Nanomaterials
CHBE 4850	Semiconductor Materials Processing
CHBE 4860	Molecular Aspects of Chemical Engineering
CHBE 4870	Polymer Science and Engineering
CHBE 4880	Corrosion Science and Engineering
CE 2205	Mechanics of Materials
CE 3205	Structural Design
CE 4200	Advanced Structural Steel Design
CE 4210	Advanced Reinforced Concrete Design
CE 4211	Mechanics of Composite Materials
ECE 4283	Principles and Models of Semiconductor Devices
ECE 4284	Integrated Circuit Technology and Fabrication
ME 3202	Machine Analysis and Design
ME 4251	Modern Manufacturing Processes
ME 4275	Finite Element Analysis
CHEM 3010	Inorganic Chemistry
CHEM 3300	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 3630	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
PHYS 2250W	Introduction to Quantum Physics and Applications I
PHYS 2290	Electricity, Magnetism, and Electrodynamics
PHYS 3640	Physics of Condensed Matter

Mechanical Engineering

Degree Programs

Undergraduate Honors Program

Facilities

Curriculum Requirements

Specimen Curriculum for Mechanical Engineering

CHAIR Nilanjan Sarkar

ASSOCIATE CHAIR Haoxiang Luo

DIRECTOR OF UNDERGRADUATE STUDIES Kenneth D. Frampton

DIRECTOR OF GRADUATE STUDIES Jason G. Valentine

DIRECTOR OF GRADUATE RECRUITING Leon M. Bellan

PROFESSORS EMERITI Thomas A. Cruse, Donald L. Kinser, Robert L. Lott Jr., Carol A. Rubin, Taylor G. Wang, John W. Williamson

PROFESSORS Douglas E. Adams, Eric J. Barth, Joshua D. Caldwell, Michael Goldfarb, S. Duke Herrell, Deyu Li, Haoxiang Luo, Sankaran Mahadevan, Caglar Oskay, Robert W. Pitz, Nilanjan Sarkar, Nabil Simaan, Alvin M. Strauss, Jason G. Valentine, Robert J. Webster III

PROFESSORS OF THE PRACTICE Amrutur V. Anilkumar, Kenneth D. Frampton, Thomas J. Withrow

ADJOINT PROFESSOR Dong Cha, Simone De Liberato, Pietro Vadastri, Peiyong Wang

ASSOCIATE PROFESSORS Leon M. Bellan, Ravindra Duddu, Greg Walker, Karl E. Zelik

RESEARCH ASSOCIATE PROFESSORS Kevin Galloway

ASSISTANT PROFESSORS David J. Braun, Ziaogung Dong, Piran Kidambi, Justus C. Ndukaife, Jie Ying Wu

ASSISTANT PROFESSORS OF THE PRACTICE Jason Mitchell, Ranjana Sahai

RESEARCH ASSISTANT PROFESSOR Richard J. Hendrick

ADJOINT ASSISTANT PROFESSOR Thomas Folland, Carl A. Hall, Stephanie Law, Derek Wolf

COURSES OFFERED: ME

The vitality of our nation depends upon innovation in the design of new machines, devices to satisfy society's needs, engines to produce power efficiently, equipment to condition the environment of our buildings, and the systems to use and control these engineered products. Mechanical engineers are involved in solving problems by originating design concepts, developing products and processes of manufacture, and designing hardware and the systems needed to satisfy society's demands. Mechanical engineers work in virtually all industries.

The study of mechanical engineering requires a basic understanding of mathematics, chemistry, physics, and the engineering sciences. Mechanical engineering education emphasizes solid mechanics; dynamics of machines; aerodynamics; propulsion devices; material behavior; power producing and environmental conditioning processes; control of dynamics of machines; energy conversion; and the synthesis, development, evaluation, and optimization of designs of devices and systems.

Degree Programs. The Department of Mechanical Engineering offers the B.E., M.Eng., M.S., and Ph.D. in mechanical engineering.

The curriculum in mechanical engineering leading to a bachelor of engineering provides a broad-based engineering education with opportunities for the student to elect courses in areas of study related to any industry and, with careful planning of the elective courses, to achieve some specialization. The mechanical engineering program prepares an individual to become a practicing engineer who can participate fully in the engineering activities of design, building, operation, production, maintenance, safety, marketing, sales, research, and administration.

Undergraduate Honors Program. See the Special Programs chapter for general requirements of the professional Honors Program in mechanical engineering. Honors candidates choose their technical elective courses with the advice and consent of an honors adviser. Each candidate is expected to take 3 hours of ME 3860 in a single semester and at least 6 hours of graduate courses numbered 5000 or higher, including one course numbered 8000 or higher. A formal written honors thesis on the candidate's research must be approved by the honors adviser and the department chair. Honors candidates shall meet all Engineering School requirements in the nontechnical areas. The diploma designation is Honors in Mechanical Engineering.

Facilities. Undergraduate instructional laboratories are equipped for studies in heat and power, refrigeration and air-conditioning, fluid flow, heat transfer, design, controls, robotics, instrumentation, and biomechanics. Specialized facilities for robotic surgery, rehabilitation robotics, energy storage, medical microfluidics, thermal transport,

combustion characterization, and photonics are used for both faculty-led research and instruction. The department also maintains various maker spaces including machine shops and design studios for fabrication of experimental equipment and for instruction.

Curriculum Requirements

The B.E. in mechanical engineering requires a minimum of 126 hours, distributed as follows:

1. Mathematics (17 hours). Required courses: MATH 1300, 1301, 2300, 2420. Required elective: MATH courses numbered 2410 and above, except MATH 3000.
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; MSE 1500, 1500L (or CHEM 1602, 1602L); PHYS 1601, 1601L, 1602, 1602L.
3. Engineering Science (25 hours). Required courses: ES 1401, 1402, 1403; CE 2200, 2205; CS 1100 or 1101 or 1103 or 1104; ECE 2112; ME 2190, 2220, 3224; MSE 2205.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Open electives (6 hours).
6. ME core (26 hours). ME 2160, 2171, 3202, 3204, 3234, 3248, 4213, 4950, 4951, and 4959
7. Technical electives (9 hours). To be selected from the following approved courses. Courses selected from the College of Arts and Science must be designated a Mathematics and Natural Sciences (MNS) course in the AXLE curriculum.
    a. School of Engineering courses except CS 1000, 1151; ENGM 2440, 3350, 4800; ES 2700, 2900, 3884; and any course numbered 2860
    b. Mathematics courses numbered 2420 or higher except MATH 3000
    c. Chemistry courses numbered 2000 or higher
    d. Physics courses numbered 2000 or higher
    e. Astronomy courses
    f. Biological Science courses
    g. Earth and Environmental Science courses
    h. Neuroscience courses

    At least 3 hours of technical electives must be numbered 2000 or above.
8. Professional (ME) depth (a minimum of 9 hours). Each student must choose at least 9 hours of ME elective courses. No more than 6 hours of 3850 and 3860 combined can be credited toward ME depth electives.

No one-credit-hour ME course except 3841 can be used as a mechanical engineering elective. A maximum of three one-credit-hour ME courses may be used as technical electives. Additional ME one-credit-hour courses can be open electives. At least one “W”-designated course (3 hours) in the English language must be included on a graded basis.

Undergraduates in mechanical engineering may apply the pass/fail option only to non-departmental courses taken as open electives, technical electives, or part of the liberal arts core, subject to the school requirements for pass/fail.

Specimen Curriculum for Mechanical Engineering

		Semester hours	
		FALL	SPRING
SOPHOMORE YEAR			
ME 2160	Introduction to Mechanical Engineering Design	3	–
MATH 2300	Multivariable Calculus	3	–

MATH 2420	Methods of Ordinary Differential Equations	–	3
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CE 2200	Statics	3	–
ME 2171	Instrumentation Laboratory	–	2
ME 2190	Dynamics	–	3
ME 2220	Thermodynamics	–	3
ECE 2112	Circuits I	–	3
	Liberal Arts Core	3	3
		16	17

JUNIOR YEAR		FALL	SPRING
ME 3202	Machine Analysis and Design	3	–
ME 3204	Mechatronics	–	3
ME 3224	Fluid Mechanics	3	–
ME 3234	System Dynamics	4	–
ME 3248	Heat Transfer	–	3
CE 2205	Mechanics of Materials	3	–
MSE 2205	Strength and Structure of Engineering Materials	1	–
	Mechanical Engineering Elective	–	3
	Open Elective	–	3
	Liberal Arts Core	3	–
	Mathematics Elective	–	3
		17	15

SENIOR YEAR			
ME 4213	Energetics Laboratory	2	–
ME 4950	Design Synthesis	2	–
ME 4951	Engineering Design Projects	–	3
ME 4959	Senior Engineering Design Seminar	1	–
	Mechanical Engineering Elective	3	3
	Liberal Arts Core	3	3
	Technical Elective	6	3
	Open Elective	–	3
		17	15

Nanoscience and Nanotechnology

Nanoscience and Nanotechnology Minor

DIRECTORS Paul E. Laibinis, Sandra J. Rosenthal

Affiliated Faculty

PROFESSORS Joshua D. Caldwell (Mechanical Engineering), David E. Cliffel (Chemistry), Craig L. Duvall (Biomedical Engineering), Philippe M. Fauchet (Electrical and Computer Engineering), Daniel M. Fleetwood (Electrical and Computer Engineering), Todd D. Giorgio (Biomedical Engineering), Scott A. Guelcher (Chemical and Biomolecular Engineering), Richard F. Haglund, Jr. (Physics), Timothy P. Hanusa (Chemistry), Frederick R. Haselton (Biomedical Engineering), De-en Jiang (Chemical and Biomolecular Engineering), G. Kane Jennings (Chemical and Biomolecular Engineering), Michael R. King (Biomedical Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), Deyu Li (Mechanical Engineering), Sokrates T. Pantelides (Physics), Peter N. Pintauro (Chemical and Biomolecular Engineering), Cynthia A. Reinhart-King (Biomedical Engineering), Sandra J. Rosenthal (Chemistry), Florence Sanchez (Civil and Environmental Engineering), Ronald D. Schrimpf (Electrical and Computer Engineering), Norman H. Tolk (Physics), Kalman Varga (Physics), Sharon M. Weiss (Electrical and Computer Engineering), John P. Wikswo, Jr. (Physics), David W. Wright (Chemistry)

ASSOCIATE PROFESSORS Leon Bellan (Mechanical Engineering), Shihong Lin (Civil and Environmental Engineering), Ethan S. Lippman (Chemical and Biomolecular Engineering), Janet E. Macdonald (Chemistry), Bridget R. Rogers (Chemical and Biomolecular Engineering), Jason G. Valentine (Mechanical Engineering), Greg Walker (Mechanical Engineering), John T. Wilson (Chemical and Biomolecular Engineering)

ASSISTANT PROFESSORS Lauren Buchanan (Chemistry), Mona Ebrish (Electrical and Computer Engineering), Piran Kidambi (Chemical and Biomolecular Engineering), Justus C. Ndukaife (Electrical and Computer Engineering), Carlos A. Silvera Batista (Chemical and Biomolecular Engineering)

RESEARCH PROFESSORS Peter T. Cummings (Chemical and Biomolecular Engineering), Clare M. McCabe (Chemical and Biomolecular Engineering), Peter Pintauro (Chemical and Biomolecular Engineering)

RESEARCH ASSOCIATE PROFESSOR James R. McBride (Chemistry)

RESEARCH ASSISTANT PROFESSORS Dmitry Koktysh (Chemistry), Alice Leach (Materials Science)

COURSES OFFERED: NANO

Faculty in the School of Engineering and the College of Arts and Science offer an interdisciplinary minor in nanoscience and nanotechnology. The minor is administered by the School of Engineering.

Nanoscience and nanotechnology are based on the ability to synthesize, organize, characterize, and manipulate matter systematically at dimensions of ~1 to 100 nm, creating uniquely functional materials that differ in properties from those prepared by traditional approaches. At these length scales, materials can take on new properties that can be exploited in a wide range of applications such as for solar energy conversion, ultra-sensitive sensing, and new types of vaccines. These activities require the integration of expertise from various areas of science and engineering, often relying on methods of synthesis, fabrication, and characterization that are beyond those encountered in an individual course of study.

Students who minor in nanoscience and nanotechnology learn the principles and methods used in this rapidly growing field. Its core originates in the physical sciences by providing key approaches for describing the behavior of matter on the nanoscale. Synthetic approaches are used to manipulate matter systematically, for creating uniquely functional nanomaterials that can be inorganic, organic, biological, or a hybrid of these. With a third component of

characterization, a process for designing systems to have particular properties as a result of their composition and nanoscale arrangement emerges. Students are introduced to these areas through foundational and elective courses for the minor that are specified below, the latter of which can be selected to fulfill the degree requirements for their major.

The minor in nanoscience and nanotechnology is supported by the Vanderbilt Institute of Nanoscale Science and Engineering (VINSE) that brings together faculty from the College of Arts and Science, the School of Engineering, and the Medical Center. A specialized laboratory facility maintained by VINSE provides students in the minor with capstone experiences that allow them to prepare and characterize a variety of nanostructured systems using in-house state-of-the-art instrumentation. This hands-on laboratory component enhances the attractiveness of students to both employers and graduate schools.

Nanoscience and Nanotechnology Minor

The minor in nanoscience and nanotechnology requires a total of 15 credit hours, distributed as follows:

1. Nano Core (6 hours). NANO 3000 and one of CHEM 2610 or CHBE 4840 or PHYS 2660.
2. Elective courses. 9 hours selected from the following list of approved subjects:

BME 4200	Principles and Applications of BioMicro ElectroMechanical Systems (BioMEMS)
BME 4500	Nanobiotechnology
CHBE 4830	Molecular Simulation
CHBE 4840	Synthesis and Applications of 2D Nanomaterials
CHBE 4850	Semiconductor Materials Processing
CHBE 4860	Molecular Aspects of Chemical Engineering
CHBE 4870	Polymer Science and Engineering
CHBE 4880	Corrosion Science and Engineering
CHEM 2610	Introduction to Nanochemistry
CHEM 3300	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 3630	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
CHEM 5610	Chemistry of Inorganic Materials
ECE 4283	Principles and Models of Semiconductor Devices
ECE 4284	Integrated Circuit Technology and Fabrication
ECE 4288	Optoelectronics
ECE 4385	VLSI Design
ECE 6306	Solid-State Effects and Devices I
IMS 5320	Nanoscale Science and Engineering
IMS 6310	Atomic Arrangements in Solids
ME 8320	Statistical Thermodynamics
ME 8323	Micro/Nanoelectromechanical Systems
ME 8365	Micro/Nanoscale Energy Transport
PHYS 2255	Modern Physics and the Quantum World
PHYS 2660	Experimental Nanoscale Fabrication and Characterization
PHYS 3640	Physics of Condensed Matter

Courses taken to satisfy relevant degree requirements for majors in the College of Arts and Science and the School of Engineering may also be counted toward fulfilling the minor.

Scientific Computing

Scientific Computing Minor

DIRECTORS Robert E. Bodenheimer, Thomas J. Palmeri, David A. Weintraub

Affiliated Faculty

PROFESSORS Ralf Bennartz (Earth and Environmental Sciences), Gautam Biswas (Electrical Engineering and Computer Science), Robert E. Bodenheimer Jr. (Computer Science), Mark N. Ellingham (Mathematics), David Furbish (Earth and Environmental Sciences), Guilherme Gualda (Earth and Environmental Sciences), Kelly Holley-Bockelman (Astronomy), Shane Hutson (Physics), Bennett Landman (Electrical and Computer Engineering), Gordon D. Logan (Psychology), Haoxiang Luo (Mechanical Engineering), Terry P. Lybrand (Chemistry and Pharmacology), Michael I. Miga (Biomedical Engineering), Mark Neamtu (Mathematics), Thomas J. Palmeri (Psychology and Neuroscience), Antonis Rokas (Biological Sciences), Jeffrey D. Schall (Psychology and Neuroscience), Larry Schumaker (Mathematics), Paul Sheldon (Physics), Kalman Varga (Physics), David A. Weintraub (Astronomy)

PROFESSOR OF THE PRACTICE Gerald H. Roth (Computer Science)

ASSOCIATE PROFESSORS Sean Polyn (Psychology and Neuroscience), Jennifer Trueblood (Psychology), Greg Walker (Mechanical Engineering), Steve Wernke (Anthropology)

ASSISTANT PROFESSOR William Holmes (Physics and Astronomy)

COURSES OFFERED: SC

Faculty in the School of Engineering and the College of Arts and Science offer an interdisciplinary minor in scientific computing to help natural and social scientists and engineers acquire the ever-increasing computational skills that such careers demand. The minor is administered by the School of Engineering. Students who complete this minor will have a toolkit that includes programming skills useful for simulating physical, biological, and social dynamics, as well as an understanding of how to take advantage of modern software tools to extract meaningful information from small and large datasets.

Computation is now an integral part of modern science and engineering. In science, computer simulation allows the study of natural phenomena impossible or intractable through experimental means. In engineering, computer simulation allows the analysis and synthesis of systems too expensive, dangerous, or complex to model and build directly. Astronomers studying the formation of massive black holes, neuroscientists studying neural networks for human memory, mechanical engineers studying the designs of turbines and compressors, and electrical engineers studying the reliability of electronics aboard spacecraft are united both in the computational challenges they face and the tools and techniques they use to solve these challenges.

Students in the program in scientific computing are taught techniques for understanding such complex physical, biological, and also social systems. Students are introduced to computational methods for simulating and analyzing models of complex systems, to scientific visualization and data mining techniques needed to detect structure in massively large multidimensional data sets, to high performance computing techniques for simulating models on computing clusters with hundreds or thousands of parallel, independent processors and for analyzing terabytes or more of data that may be distributed across a massive cloud or grid storage environment.

Scientific computing at Vanderbilt is supported by faculty and includes students from a wide range of scientific and engineering disciplines. While the content domain varies, these disciplines often require similar computational approaches, high-performance computing resources, and skills to simulate interactions, model real-life systems, and test competing hypotheses. Scientific computing embodies the computational tools and techniques for solving many of the grand challenges facing science and engineering today.

The minor in scientific computing prepares students for advanced coursework that combines computational approaches with a substantive area of science or engineering. It prepares students for independent study with a faculty member on a research project. It prepares students for advanced study in graduate school. It provides skills that will be attractive to many employers after graduation.

The minor in scientific computing is distinct from the minor in computer science. Scientific computing uses computation as a tool to solve scientific and engineering problems in research and application. It is more focused on simulation, numerical techniques, high performance computing, and higher-level methods than the minor in computer science, which is focused on the algorithms, systems, and technologies that enable such methods to be developed and employed.

Scientific Computing Minor

The minor in scientific computing requires 15 credit hours, distributed as follows:

1. CS 1101 or 1103 or 1104. (3 hours)
2. CS 2204 (CS 2201 may be substituted for 2204 with the approval of a program director). (3 hours)
3. Elective courses (9 hours). Three hours must come from course list A (Mathematical, Quantitative, and Data Science Methods); three hours must come from course list B (Computational, Simulation, and Modeling Methods); and three hours can come from either course list A or B, or from independent study (SC 3850/3851) with a faculty member affiliated with the SC minor.

A. Computational, Simulation, and Modeling Methods

SC 3250	Scientific Computing Toolbox
ANTH 3261	Introduction to Geographic Information Systems and Remote Sensing
BMIF 6310	Foundations of Bioinformatics
BMIF 7380	Data Privacy in Biomedicine
BSCI 3272	Genome Science
BME 2400	Quantitative Methods I: Statistical Analysis
CE 4320	Data Analytics for Engineers
ECON 3032	Applied Econometrics
ECON 3035	Econometric Methods
ECON 3750	Econometrics for Big Data
ECE 6358	Quantitative Medical Image Analysis
HOD 3200	Introduction to Data Science
MATH 3620	Introduction to Numerical Mathematics
MATH 3670	Mathematical Data Science
MATH 4600	Numerical Analysis
MATH 4620	Linear Optimization
MATH 4630	Nonlinear Optimization

B. Computational, Simulation, and Modeling Methods

SC 3260	High Performance Computing
ASTR 3600	Stellar Astrophysics
ASTR 3700	Galactic Astrophysics
ASTR 3800	Structure Formation in the Universe
BME 7310	Advanced Computational Modeling and Analysis in Biomedical Engineering
BME 7410	Quantitative Methods in Biomedical Engineering
CHBE 4830	Molecular Simulation
CHEM 5410	Molecular Modeling Methods
CHEM 5420	Computational Structural Biochemistry
CS 3274	Modeling and Simulation
EES 4760	Agent and Individual Based Computational Modeling
MATH 3630	Mathematical Modeling in Biology
MATH 3660	Mathematical Modeling in Economics
ME 4263	Computational Fluid Dynamics and Multiphysics Modeling
ME 4275	Finite Element Analysis
NSC 3270	Computational Neuroscience
PHYS 3200	Statistical Physics
PHYS 3790	Computational Physics
PSY 4218	Computational Cognitive Modeling
PSY 4219	Scientific Computing for Psychological and Brain Sciences
PSY 4775	Models of Human Memory

Engineering Courses

Biomedical Engineering

Civil Engineering

Chemical and Biomolecular Engineering

Computer Science

Digital Fabrication

Electrical Engineering and Computer Engineering

Engineering Management

Engineering Science

Environmental Engineering

Mechanical Engineering

Materials Science and Engineering

Nanoscience and Nanotechnology

Scientific Computing

Peabody College

Peabody College Administration and Faculty

CAMILLA P. BENBOW, Ed.D., Dean

XIU CHEN CRAVENS, Ph.D., Associate Dean for International Affairs

ELLEN GOLDRING, Ph.D., Executive Associate Dean

CATHERINE GAVIN LOSS, Ph.D., Senior Associate Dean for Academic Affairs and Professional Education

JEANNETTE MANCILLA-MARTINEZ, Ed.D., Associate Dean for Graduate Education

JACCI L. RODGERS, Ph.D., Associate Dean for Data Analytics

SHARON L. SHIELDS, Ph.D., Senior Associate Dean for Community and Special Projects

ANITA A. WAGER, Ph.D., Senior Associate Dean for Undergraduate Academic Affairs and Teacher Education

NICOLE M. JOSEPH, Ph.D. Associate Dean for Equity, Diversity and Inclusion

MALINA C. HALMAN-PEGUILLAN, M.Ed., Assistant Dean for Academic Services

MEAGHAN MUNDY, Ph.D. Assistant Dean for Student Empowerment, Engagement, and Development

HASINA MOYHUDDIN, Ph.D. Assistant Dean, Equity, Diversity and Inclusion

SCOTT GUBALA, M.A., Assistant to the Dean

Endowed Chairs and Named Professorships

Patricia and Rodes Hart Dean of Education and Human Development

Patricia and Rodes Hart Professor of Educational Neuroscience

Patricia and Rodes Hart Professor of Psychology and Human Development

Patricia and Rodes Hart Professor of Educational Leadership and Policy

Frank W. Mayborn Professor

Dunn Family Chair in Educational and Psychological Assessment, Special Education

Currey-Ingram Chair in Special Education

Nicholas Hobbs Chair in Special Education

Betts Professor of Education and Human Development

Antonio M. and Anita S. Gotto Chair in Teaching and Learning

Margaret Cowan Chair in Teacher Education

Susan Gray Chair in Education and Human Development

Cornelius Vanderbilt Chair

Faculty Council

peabody.vanderbilt.edu/faculty/faculty-research/faculty_council.php

Council on Teacher Education

Camilla P. Benbow, Chair.

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

Education and Human Development at Vanderbilt

George Peabody College for Teachers, recognized for more than a century as one of the foremost independent colleges of teacher education, merged with Vanderbilt University in the summer of 1979 to become Vanderbilt University's Peabody College of education and human development. Since then, Peabody College has retained its heritage while achieving new stature as a place where world-class research is conducted and translated into teaching, practice, policy, and service. Peabody's mission is characterized by practice-oriented academic programs, a strong service ethic, groundbreaking research, and a pressing concern for addressing social problems in domestic and international contexts.

The college's faculty and students constitute a vibrant intellectual community answering pressing questions and expanding knowledge about PreK–12 and higher education, including special education; psychology, especially focused on families and children; the development of individuals and organizations; and educational administration, leadership, and policy. Peabody College understands the preparation of researchers, teachers, and leaders as among the most important things it does, and that building and sustaining an engaged academic community of learners is central to achieving its mission.

Peabody faculty and students engage in a broad spectrum of basic and applied research to generate new knowledge and translate that knowledge into practice. Current research findings inform classroom teaching at Peabody in every program. Moreover, Peabody faculty bring an interdisciplinary and entrepreneurial spirit to the research enterprise.

Working collaboratively, often through one of the college's research centers, faculty and students publish and present their findings, apply them in real-world settings, and help to shape public debate about the nature and future of education and human development.

The college is devoted to enhancing opportunity in an increasingly diverse society. More than 1,900 students are enrolled at Peabody, with more than one-third of them in post-baccalaureate graduate or professional degree programs.

All teacher education programs are accredited by the Council for the Accreditation of Education Preparation (CAEP). Counseling programs are accredited by the Council for the Accreditation of Counseling and Related Education Programs (CACREP).

Centers and Outreach Efforts

For more information about Peabody College's Centers and Outreach Efforts, please see here: https://peabody.vanderbilt.edu/research/research-centers.

Next Steps at Vanderbilt University

Next Steps at Vanderbilt is a four-year, nonresidential certification program for students with intellectual and developmental disabilities, providing individualized programs of study in the areas of education, social skills, and vocational training. Next steps is a comprehensive transition program designated by the U.S. Department of Education. This status recognizes the program's merits and allows eligible students to apply for federal financial aid for tuition assistance. Learn more here: https://peabody.vanderbilt.edu/nextsteps.

The Undergraduate Program

Peabody College offers the bachelor of science with majors in elementary education, secondary education, special education, cognitive studies, child development, child studies, and human and organizational development. These undergraduate programs are designed to prepare students for professional careers in their chosen fields. Programs for Peabody students include course work in a Liberal Education Core, a professional core, a major area of specialization, and electives. Peabody also provides professional education courses for College of Arts and Science students who want to prepare for teacher licensure.

The bachelor of science is granted on the basis of 120 semester hours of college work with a final grade point average of 2.000, and completion of the Liberal Education Core and the requirements of the major.

Liberal Education Core Program

In pursuit of breadth of knowledge and understanding about the world in which they live, all undergraduates complete the requirements of the Liberal Education Core program. This Liberal Education Core component of all Peabody undergraduate majors is intended to provide students with a solid foundation in the arts and sciences. The core curriculum incorporates the study of human conditions that are universal. The Liberal Education Core involves study in the following areas:

Communications. The study of language in its written and spoken forms.

Mathematics/Quantitative Analysis. The study of mathematical concepts and procedures.

Social Sciences. The study of the past—both the heritage of the United States and the more global human story.

Humanities. The study of the universal language of the arts.

Natural Sciences. The study of scientific process and interrelationships among the sciences.

Through the study of these universal subjects, concepts, and modes of thought, students gain a broad foundation transferable to their futures. They will continue to grow within society and the classroom and will look at problems from different perspectives while maintaining curiosity.

Courses identified to fulfill the Liberal Education Core requirement for each undergraduate major are listed in Peabody's *Undergraduate Handbook* (https://peabody.vanderbilt.edu/office-academic-services/).

Courses used to satisfy these core requirements may also be counted toward the fulfillment of requirements in an academic major. Special topics courses are ordinarily not acceptable for meeting Liberal Education Core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable for meeting Liberal Education Core requirements.

Transfer students may use credits from other colleges to fulfill Peabody's Liberal Education Core requirements if the credits are equivalent to the courses offered at Vanderbilt. For transfer students, credits are evaluated when the student enrolls at Peabody in order to determine which transfer courses will substitute for Peabody's Liberal Education Core requirements. Requirements still to be fulfilled will be noted at that time.

Licensure for Teaching

Security Clearance

Degree Audits

Screening

Screening I (Formal Admission to an Undergraduate Teacher Education Program)

Screening II (Admission to Student Teaching)

Student Teaching

Application for Teacher Licensure and University Recommendation for Licensure

Accreditation

Peabody offers programs leading to teacher licensure in the following areas: elementary (grades K–5), and secondary education (grades 6–12) with endorsement in English, math, biology, chemistry, physics, earth science, history, and political science. (Added endorsements are available also in economics, psychology, and sociology for those who will have a history endorsement.) An added endorsement program also is available in English as a Second Language (grades PreK–12). All of these programs are offered by the Department of Teaching and Learning.

Special education–interventionist (LD/BD for grades K–8 or 6–12) or comprehensive (multiple/severe for grades K–12) are offered by the Department of Special Education.

Vanderbilt's Blair School of Music and Peabody College offer a program for students interested in teacher licensure with endorsement in the following: *(1) instrumental/general music (grades K–12), or (2) vocal/general music (grades K–12).* Blair students complete the first part of the program as part of the bachelor of music degree and apply during the senior year to continue into the master of education degree for a final year of professional education.

Students seeking licensure may enroll in Peabody College, the College of Arts and Science, or the Blair School of Music. In all cases, most of the liberal arts course work is taken in the College of Arts and Science, and the professional education course work is taken at Peabody College.

All students completing a teacher education program at Vanderbilt are strongly advised to apply for a license in Tennessee whether or not they plan to teach in this state. In addition, licensure is available by application in other states. The student is responsible for applying for Tennessee licensure through the Office of Teacher Licensure. Each state has its own application forms and procedures for licensure; information is available on the Office of Teacher Licensure website: peabody.vanderbilt.edu/teacher-licensure/.

Licensure requirements continue to undergo revision. Students must meet licensure requirements in effect at the time of their program completion, which may be different from requirements in effect at the time they entered the program. Each year, teacher education students should consult the current Vanderbilt *Undergraduate Catalog* or the Peabody *Undergraduate Handbook*. The website peabody.vanderbilt.edu/teacher-licensure/ provides additional information.

Security Clearance

As part of the Peabody background check process you are required to pass a fingerprint criminal background check by the beginning of your first semester. Visit https://peabody.vanderbilt.edu/criminal-background-clearance for detailed information.

Degree Audits

Electronic degree audits enable students and faculty advisers to track each student's progress in the degree program at Peabody. The departmental handbooks describe access to and use of online Peabody major degree audits to view program requirements recognized as "met" or "unmet" at any time in the student's program. The degree audit also denotes permissions for waivers or course substitutions. Degree audits are managed in the Peabody Office of Academic Services.

SCREENING

Students seeking teacher licensure must be approved by each department through which licensure is sought. Secondary licensure candidates should contact an adviser or the director of undergraduate studies in the appropriate Arts and Science department(s) to be informed of any specific departmental requirements or standards. There are two points in each teacher education program when undergraduates must complete applications for screenings by departmental faculty. Screening requirements continue to undergo revision and are subject to change. Students must meet screening requirements in effect at the time of their application, which may be different from requirements stated below. Screening reviews, described below, are important checkpoints that allow successful students to advance in the program. Attainment of 2.75 (4.0) cumulative grade point average and completion of required courses do not automatically qualify a student for continuation in the program.

Faculty evaluation of a student's qualifications for continuation in a teacher education program include academic, performance, and disposition factors such as the following:

1. Dependability (as evidenced by good attendance in classes and practica and the completion of required assignments and procedures on time)
2. Professional and ethical behavior (honesty, acceptance of responsibility, emotional maturity, etc.)
3. Attitude and interpersonal skills (including the ability to work with children and with peers)
4. Academic competence (It is possible for a student to meet minimum grade point requirements and pass all courses and still have specific academic weaknesses which might cause denial of screening applications)
5. Teaching competence (as evidenced by successful completion of practica requirements). It is possible for a student to meet minimum grade point requirements and pass all courses and still have specific performance weaknesses which might cause denial of screening applications.

These criteria rest on the professional judgment of faculty members. Whether a student meets them or not is determined by a vote of appropriate faculty. Undergraduate students seeking secondary education licensure must be approved by the Department of Teaching and Learning faculty and also by the faculty of College of Arts and Science department(s) for the Arts and Science major(s).

Screening deadlines are October 1 and February 1. Undergraduates must apply for Screening I during spring of the sophomore year or fall of the junior year. Screening II must be done in the fall of the senior year, restricting undergraduate student teaching to the spring of the senior year. Deadlines are firm; late applications will not be accepted. The Screening I and II application form should be submitted online no later than the deadline. (NOTE: Screening II applications require additional documents when submitted. See specific requirements with the application.)

Students will be notified of results of the faculty vote at the end of the screening semester. In instances where there is a negative decision, the student wishing to appeal must do so in writing to the chairperson(s) of the department(s) denying the application. If the initial decision is upheld and the student wishes to continue the appeal, a written petition should be filed with the Administrative Committee of Peabody College.

Screening I (Formal Admission to an Undergraduate Teacher Education Program)

Each student seeking teacher licensure must be formally admitted to the teacher education program(s) by completing an online application for Screening I review by the faculty of the department(s) in which endorsement(s) is/are sought. Candidates normally apply for Screening I during spring of the sophomore year or fall of the junior year, depending on their program area (candidates should consult their department handbook for timelines in their program area). Deadlines are February 1 in the spring and October 1 in the fall. Students who transfer more than 60 hours to Vanderbilt from another institution must apply for admission to the teacher education program by the screening deadline of their second semester at Vanderbilt.

An initial screening review by the faculty will occur soon after the Screening I deadline. If there are concerns noted, the student will be counseled. The final faculty review and decision will be done toward the end of the semester.

Criteria for Screening I (formal admission to teacher education) are:

A. Specific Academic Criteria
    1. Test scores (SAT composite score of 780 or ACT 21, OR passing scores on the Praxis I Core Academic Skills for Educators) or university credit in reading, writing, and mathematics courses.
    2. Minimum cumulative grade point average of 2.75 (4-point scale)
    3. Successful completion of at least two of the required professional education courses as defined by the program area with a minimum grade of *C+*
    4. Department interview
B. Specific Faculty Evaluative Criteria: The faculty will consider the disposition criteria of dependability, professional and ethical behavior, attitude and interpersonal skills, and teaching competence as itemized at the beginning of the Screening section.

Screening II (Admission to Student Teaching)

Admission to Student Teaching is not automatic when prerequisite course work and field experiences have been completed. All students must submit the online Screening II application by October 1 in the fall of the senior year. At the time of screening application, the student should be enrolled in any remaining prerequisite courses. **No course work may be taken during the semester of student teaching and seminar.**

After an initial review in the Office of Teacher Licensure, the Screening II application and other submitted materials will be considered by departmental faculty according to the following criteria for Screening II approval to student teach:

A. Specific Academic Criteria
    1. Formal admission to a teacher education program granted (completion of Screening I)
    2. First semester senior standing (for student teaching in the spring of the senior year)
    3. Successful completion (*C+* or above) of all courses required and prerequisite to student teaching as defined by the program area
    4. Minimum cumulative grade point average of 2.75 (4.0 scale)
    5. Satisfactory performance (*C+* or above) in course work in areas in which teacher licensure is sought
    6. Successful completion of Standard First Aid and CPR training (attach certificate copies to the Screening II application)
B. Specific Faculty Evaluative Criteria: The faculty will consider the disposition criteria of dependability, professional and ethical behavior, attitude and interpersonal skills, and teaching competence as itemized at the beginning of the Screening section.

Each Screening II application requires additional documents, depending on the program. A copy of first aid and CPR verification of training completed within the previous two years must be submitted to the Office of Teacher Licensure by the October 1 or February 1 deadline. In addition, some programs have additional requirements that are prerequisite to Screening II application. Students should consult departmental handbooks. Screening II applicants who are approved to student teach will receive notification of their student teaching placements no later than during the Student Teacher Orientation at the beginning of the student teaching semester.

Students who have passed Screening II are assigned two specific student teaching placements in the Nashville area.

Student Teaching

Vanderbilt students seeking teacher licensure must successfully complete a 15-week semester of full-time student teaching in two different grade levels in Nashville area public schools and must be recommended for licensure by the supervisors of student teaching and departmental faculty. Student teaching may be done only in the spring semester. Prior to the start of student teaching, all prerequisite courses must have been completed, the cumulative GPA must be at least 2.75, and the appropriate departmental faculties must have voted to approve the candidate for student teaching during the previous semester as part of the Screening II application process. The Tennessee State Department of Education and Metropolitan Nashville Public Schools prohibit student teachers from taking courses during student teaching. See the departmental *Undergraduate Handbook* for details.

Application for Teacher Licensure and University Recommendation for Licensure

All students completing the teacher education program at Vanderbilt are strongly advised to apply for a license in Tennessee whether or not they plan to teach in this state. In addition, licensure is available in most other states.

The student is responsible for applying for Tennessee licensure through the Office of Teacher Licensure. Each state has its own application forms and procedures for licensure; information is available on the Office of Teacher Licensure website.

To be licensed through Vanderbilt's teacher education program, a graduate must earn a positive licensure recommendation from the university. The university's decision to recommend a candidate is based upon the following:

1. Maintaining the grade point average required for admission to the teacher education program (2.75 on a 4.0 scale).
2. For Tennessee licensure, achieving the state minimum score on all required parts of the PRAXIS II Series and edTPA (scores must be sent to the Vanderbilt Office of Teacher Licensure–code R 1871, and the Tennessee Department of Education–code R 8190).*
3. Receiving a positive recommendation from the student's department as a result of the student teaching experience (Pass in student teaching does not guarantee a favorable recommendation).

*Testing requirements are changing almost annually; check instructions in the Office of Teacher Licensure or at ets.org/praxis/ before registering to take the exam.

Accreditation

Vanderbilt University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, masters, and doctorate degrees. Degree-granting institutions also may offer credentials such as certificates and diplomas at approved degree levels. Questions about the accreditation of Vanderbilt University may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website (www.sacscoc.org).

Vanderbilt is accredited by the Council for the Accreditation of Education Preparation (CAEP) and its teacher licensure programs also are approved by the Tennessee Department of Education and the following specialty professional associations:

National Council for Teachers of English (NCTE)

Council for Exceptional Children (CEC)

Council for Accreditation of Counseling and Related Educational Programs (CACREP)

Association for Childhood Education International (ACEI)

American Speech-Language-Hearing Association (ASHA)

National Council for the Social Studies (NCSS)

National Council for Teachers of Mathematics (NCTM)

National Science Teachers Association (NSTA)

Accreditation Council for Education in Nutrition and Dietetics (ACEND)

Academic Regulations in Peabody College

Honor System

Academic Advising

Class Attendance

Course Load

Residence Requirement

Graduation

Honor System

All academic work at Vanderbilt is done under the honor system. (See the Honor System section in Life at Vanderbilt.)

Academic Advising

Each Peabody undergraduate is assigned an academic adviser who is familiar with his or her major or minor. This adviser is generally a faculty member in the major/minor department and is knowledgeable about the courses the student will need to complete his or her major/minor. The adviser helps the student determine the courses that are most suitable for the chosen major and serves as a mentor to the student.

However, enrollment in appropriate courses to fulfill degree requirements and knowledge of university policies and regulations regarding courses are the responsibility of the individual student.

Class Attendance

Students are expected to attend all scheduled meetings of classes in which they are enrolled; they have an obligation to contribute to the academic performance of all students by full participation in the work of each class. At the beginning of the semester, instructors explain the policy regarding absences in each of their classes, and thereafter they report to the office of the dean of the college the name of any student whose achievement in a course is being adversely affected by excessive absences. In such cases, the dean, in consultation with the instructor, takes appropriate action, which may include dropping the student from the class; students dropped after the deadline for withdrawal receive the grade *F*. Class attendance may be specified as a factor in determining the final grade in a course, and it cannot fail to influence the grade even when it is not considered explicitly.

Course Load

A student must be enrolled in a minimum of 12 hours to be classified as a full-time student. Students wishing to carry more than 18 hours must obtain the approval of the Associate Dean for Undergraduate Academic Affairs. All undergraduate students are assumed to be full-time students for the purpose of administering probation and retention policies. A student who for reasons of health, family, or outside employment wishes to enroll in Peabody as a part-time student must obtain permission from the Associate Dean for Undergraduate Academic Affairs. The academic standing of such students will be considered on an individual basis. Normally, however, a student earning less than 12 hours will be placed on academic probation.

Residence Requirement

Students must complete a minimum of 60 hours in residence at Vanderbilt including the final two semesters.

Credit by Examination

In certain circumstances students may be awarded course credit by departmental examination. (This procedure is distinct from the award of credit through the College Board Advanced Placement Tests taken prior to a student’s first enrollment.). Students wanting to earn credit by departmental examination should consult the Peabody Office of Academic Services concerning procedures. To be eligible, students must be carrying a minimum of 12 hours and be in good standing.

Students must obtain the approval of the chair of the department that is to give the examination and the instructor designated by the chair. Students may earn up to 8 hours of credit by examination in any one department. Students may attempt to obtain credit by examination no more than twice in one semester and no more than twice in one course. Students may not repeat a course for grade replacement under the credit by examination procedures.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after

learning the results of the examination.

Students enrolled for at least 12 hours are not charged extra tuition for hours earned through credit by examination, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no- credit courses and courses dropped after the change period. Students in this category must pay a $50 fee for the cost of constructing, administering, and grading the examination. Since this cost has already been incurred, students who refuse the credit hours and grade are charged the $50 fee nevertheless.

Full-time students with a tuition load exceeding 18 hours and students taking fewer than 12 hours pay tuition at the hourly tuition rate.

Liberal Education Core Guidelines

Applicants to Peabody College will be required to take the SAT I or ACT writing test and the SAT II mathematics test. Students with majors in human and organizational development, cognitive studies, child studies, or child development do not need the SAT II mathematics test. For applicants applying for Fall 2022 entry, Vanderbilt is test optional. Scores from the ACT or SAT are not required to be considered for admission. Applicants who want their test scores to be considered may self-report them on the application or may have official scores sent to Vanderbilt by the testing agency. Official test scores are required for students who applied with testing and who were admitted and enroll.

The following application of these scores will be made to the Peabody Liberal Education Core:

Writing Requirement

Before graduation, all Peabody students must successfully complete two writing courses and credit for the ENGL 1100s. Writing-intensive courses either have a “W” after the course number (A&S courses) or end with the digit "7" (Peabody courses).

To earn credit for ENGL 1100, students must complete one of the following:

- English 1100
- SAT: Combined score of at least 1220 on the Writing and Critical Reasoning sections, with a minimum score of 500 on each (test taken prior to March 2016).
- SAT: Score of at least 660 on the Evidence-Based Reading and Writing section, with a minimum score of 27 on the Reading section and a minimum score of 28 on the Writing and Language section (test taken March 2016 or later).
- ACT: Score of at least 27 on the English portion combined with a minimum score of 7 on the Writing portion (test taken prior to September 2015).
- ACT: Score of at least 27 on the English portion combined with a minimum score of 19 on the Writing portion (test taken between September 2015 and September 2016).
- ACT: Score of at least 30 on the English portion.
- AP: Minimum score of 4 on the English Language or English Literature exam.
- IB: Minimum score of 6 on the Higher level English A Literature or the Higher Level English A Language & Literature exam.
- Minimum score of 62 on the Tailwind Writing Skill and Reading Comprehension Proficiency Exam.

First-year seminars (courses labeled 1111) offered through the College of Arts and Science and Blair School of Music may count as writing-intensive courses. Peabody freshmen may register for first-year seminars when open registration begins if there are available seats in the course not reserved for Arts and Science students or Blair students. Peabody students are not *required* to take a First-year Writing Seminar.

Mathematics

Students with first majors in elementary, secondary, or special education with an SAT II Mathematics test score at or above 620 (Level I) or at or above 570 (Level II) are exempt from three hours of the math component of the Liberal Education Core mathematics category. Students with an exemption must take an additional three credit hours in their Liberal Education Core elective category to have the minimum required sixty-hour core. Students must take a

statistics course if required for their major.

Students with first majors in child development, child studies, cognitive studies, or human and organizational development must take six hours as stated in the Liberal Education Core mathematics category.

Undergraduate Enrollment in 5000–8000-level Courses

All students wishing to take 5000–8000-level courses for either undergraduate or graduate credit must obtain the written approval of their academic advisers, the instructor of the course, and the Office of Academic Services. Some courses are designed to enroll both undergraduate and graduate/professional students in the same class section. Such courses will typically have two course numbers, one in the graduate range (5000–8000) and one in the undergraduate range (usually either 3000– or 4000–level). Unless they wish to take the course for post-baccalaureate credit, undergraduates must register for the course using the undergraduate course number and may do so without any special permission.

Undergraduates wishing to receive approval for graduate credit in 5000–8000-level courses also see below.

Undergraduate Enrollment for Post-Baccalaureate Credit

A qualified Vanderbilt University senior undergraduate may enroll in courses approved for post-baccalaureate credit and receive credit which, upon the student's admission into a Peabody College professional program, may be applicable toward the professional degree. The principles governing this option are as follows:

1. Work taken under this option is limited to those 5000–8000-level courses approved for post-baccalaureate credit, excluding thesis and dissertation research courses and similar individual research and readings courses.
2. Such work must be in excess of that required for the bachelor's degree.
3. At the time of registration, the student must have a *B* average in all prior work to be counted toward the bachelor's degree, or a *B* average in all prior work to be counted toward the undergraduate major, or a *B* average in the preceding two semesters.
4. Undergraduate students wishing to count for post-baccalaureate credit courses taken under this option must consult the instructor of each course and must, at the time of registration, declare their intention on a form available at the Office of Academic Services.
5. The student's total course load (graduate plus undergraduate courses) must not exceed 15 hours during any semester in which graduate credit is pursued.
6. Permission for Vanderbilt undergraduates to enroll in post-baccalaureate courses does not constitute a commitment on the part of any department to accept the student in the future. Courses taken under this option are subject to departmental approval before they may be included on post-baccalaureate programs of study.
7. An undergraduate student exercising this option will be treated as a post-baccalaureate student with regard to class requirements and grading standards.

Interested students should consult the Peabody Office of Academic Services to verify their eligibility as defined above before attempting to register for post-baccalaureate course work under this option.

Undergraduate Enrollment for an Independent Study

Independent study courses, ranging from zero to three hours of credit, are listed in the *Schedule of Courses* and are intended for students in their junior and senior years. Students wanting to undertake an independent study must follow these guidelines:

1. Students must be in academic "good standing" (may not be on probation or Leave of Absence).
2. Students must arrange the independent study with a Vanderbilt full time faculty member who has agreed to supervise and grade this course.
3. Students may enroll for up to 3 hours of independent study in one semester.
4. Students must make a study plan detailing the nature of the project and the amount of credit. The Individual Learning/Directed Study contract must be approved by the instructor and the department chair (or the chair's designee) by the last day of the change period.
5. Registration for the course occurs when the completed Individual Learning/Directed Study contract is submitted to the Peabody Office of Academic Services. Registration for an independent study will not be allowed after the change period has ended.

Students may not repeat independent study courses for grade replacement.

Transfer Credit/Summer or Other Courses Off Campus

Students who transfer from another institution must have a final transcript sent directly to the Undergraduate Admissions Office, Vanderbilt University. Upon acceptance, students will be asked to submit course descriptions and syllabi for all proposed transfer credit. Upon acceptance, courses will be evaluated by Vanderbilt to determine which courses will transfer and which requirements (e.g., Liberal Education Core, professional core) are met by the transfer courses. No course for which a student received the grade *D+* or lower will transfer. Course work transferred to Vanderbilt from another institution will not carry with it a grade point average.

Transfer students must complete at least 60 hours of work at Vanderbilt. Two of the four semesters in residence must be the last two semesters of the student's degree program.

Peabody students who wish to take course work during the summer, or during an academic-year semester, at a regionally accredited two-year or four-year college or university and transfer up to 12 hours to Vanderbilt must be in good standing with at least a C average. Prior approval must be granted for all courses to be taken elsewhere. If the courses are to be taken during the academic year, the student must take a personal leave explicitly approved for this purpose by the Peabody Dean's Office. Students on leave for other reasons (e.g., medical or other personal reasons) cannot take course work elsewhere for transfer credit without prior permission. Course work transferred to Vanderbilt from another institution will not carry with it a grade point average.

Requests to participate in non-Vanderbilt-approved overseas programs for transfer credit will be approved only under exceptional circumstances in which the proposed program represents a truly unique and unusual educational opportunity. To apply for approval, the student should complete the transfer of credit application and apply for a leave of absence for the relevant semester. The student must be in good standing with at least a 2.700 grade point average as of the date of application, and approval must be granted in advance of the study overseas. Petitions for leaves of this type must be filed at least one month before the close of the preceding semester, and final approval of such petitions always rests with the dean's office. It should be noted, however, that if a program has been approved by Vanderbilt, students must enroll in the program via the Global Education Office. In no case, after matriculating at Vanderbilt, may a student apply to participate in an approved program for transfer credit through a different university, or through an external agency, and then seek to transfer that credit into Vanderbilt.

Students enrolled full time (i.e., carrying at least 12 credit hours) during a regular (fall or spring) semester are assumed to be engaged in full-time study at Vanderbilt. Such students are not permitted to take additional course work elsewhere, for transfer credit, during the semester. This includes online courses, as well as courses offered by nearby institutions.

Declaration of Major and of Second Major

Peabody students declare a major as part of the application process prior to admission. In their first semester, Peabody freshmen are expected to take course work recommended for the major into which they were admitted. Students wishing to change into a different major within Peabody cannot declare this change until March of their first year. Second majors must be declared no later than the second semester of the sophomore year. Also, during the sophomore year, students majoring in secondary education and special education will be required to declare their area of specialization or track.

Overlap in Course Work between Multiple Majors and Minors

Students pursuing multiple majors and/or optional minors are limited in the amount of course work that can be shared across their major and minor programs of study. If the major or minor is offered through a school other than Peabody, the amount of course work that can be shared between that major or minor and other majors or minors is determined by that school's policies. For a major offered through Peabody College, at least 21 credit hours need to be unique to that major. That is, 21 hours within the major cannot be used to count toward any other major or minor. For a minor offered through Peabody College, at least 15 hours need to be unique to that minor.

Senior Re-examination

A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed prevents the student's graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination.

The re-examination must be requested through the Office of the Associate Deans, and if approved, it is given immediately after the close of the last semester of the student's senior year. A student who passes the re-examination will receive a D– in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course.

Grading System

Peabody College undergraduate students are on a four-point grading system. All work is graded by letters, interpreted as follows:

A: excellent

B: good

C: satisfactory

D: minimum pass work

F: failure

Under certain circumstances the following grades may be awarded:

W: withdrawal

P: pass (see Pass/D/Fail course provision)

M: missed final examination

I: incomplete in some requirement other than final examination

Plus and minus modifiers may be associated with the letters A through D as shown in the table below. Grade point averages are calculated using indicated grade point values.

Defined Grades with Corresponding Grade Points per Credit Hour

A	=4.0		C	=2.0
A-	=3.7		C-	=1.7
B+	=3.3		D+	=1.3
B	=3.0		D	=1.0
B-	=2.7		D-	=0.7
C+	=2.3		F	=0.0

Grade Point Average

A student's grade point average is obtained by dividing the grade points earned by the hours for which the student has registered, excluding courses taken for no credit, those from which the student has withdrawn, and those that

are completed with the grade P.

Audit

Regularly enrolled Peabody College students who want to audit courses in any of the undergraduate schools of the university must obtain the written consent of the instructor to attend the class but do not register for the course for credit. Forms are available online: peabody.vanderbilt.edu/admin-offices/oas/downloads.php. No permanent record is kept of the audit. Regular students may audit one class each semester free of charge. In order to audit a course, the student must also be enrolled in at least one additional graded credit hour in the same semester.

Pass/Fail

Students may elect to take some courses in which they can receive the grade P (Pass). This grade is entered for the student enrolled under the P/F option who is awarded a grade of D- or higher. The grade P is neither counted in the grade point average nor used in the determination of honors. A failing grade will appear on the student record as F and will be counted in the student's grade point average.

To be eligible for the P/F option, the student must have completed two regular semesters at Vanderbilt and must not be on academic probation. No more than one course per semester may be taken on a P/F basis and no more than three total during the undergraduate career. No more than one course from any Liberal Education Core area (e.g., communications, humanities) may be taken under this option.

Note that neither courses taken for transfer credit (grade of "T") nor courses that are only offered on a pass/fail basis by the university (e.g., certain field experience courses) are counted against the number of courses that a student may voluntarily elect to take on a pass/fail basis, either within or across semesters.

The P/F option does not apply to courses in the following categories:

1. Liberal Education Core Courses that have been specifically identified by the student's primary major as needing to be taken on a graded basis.
2. For students with a single or double major, courses in the department(s) of the major(s) or other courses that may be counted for the major(s);
3. For students with an interdisciplinary major, courses listed in the student's plan of study;
4. For students planning an optional minor, courses in the department of the minor or those counting toward an interdisciplinary minor.

Students taking a course on a P/F basis must be enrolled for at least 12 additional hours on a regularly graded basis. If a student drops a course and falls below 12 graded hours, the P/F course is converted automatically to a regularly graded basis.

Seniors who meet the above criteria and have permission to take fewer than 12 hours on a graded basis may take one course on a P/F basis in one of their last two semesters (e.g., a semester in which an internship or student teaching is not being taken). If the student does not graduate at the end of the senior year, the grade of P is automatically converted to the grade actually earned. When a student wishes to complete a major or minor in a field in which a grade of P has been received, the registrar converts this grade to the regular grade originally earned.

All P/F students are expected to meet normal course requirements (e.g., reports, papers, examinations, laboratory attendance) and are graded in a normal way. At the end of the semester, students enrolled on a P/F basis are awarded a regular grade. Any grade of D- or better is converted in the Student Records System to a P, while an F grade remains as awarded. A student taking a course on a P/F basis must meet the course prerequisites as set forth in this catalog.

Students may submit a Pass/Fail request form on or before the Pass/Fail declaration deadline. Students may change from a P/F basis to a regularly graded basis until the last day to withdraw from classes in a given term. All Pass/Fail deadlines are published in the Academic Calendar. The Pass/Fail form is available online: peabody.vanderbilt.edu/admin-offices/oas/downloads.php.

Credit Hour Definition

Credit hours are semester hours; e.g., a three-hour course carries credit of three semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements which exceed this definition. Certain courses (e.g., dissertation research, ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content.

These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester will be included in the course description.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or the default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available:

1. Incomplete (I): To be assigned only if the following conditions apply:
    i. An extenuating circumstance has emerged after the course withdrawal deadline
    ii. The student is up to date on all work prior to the extenuating circumstance
    iii. The student successfully completed at least 60% of the assigned work throughout the semester
    iv. The student requests the incomplete before the end of classes
    v. The student has been attending a significant majority of the classes
2. Missing final exam or final evaluation (M): To be assigned only if the following conditions apply:
    i. The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is recorded.
    ii. The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

Withdrawal

The symbol W (withdrawal) is assigned in lieu of a grade when a student formally withdraws from a class before the published mid-semester deadline. After that point, withdrawal will result in an F. A student who withdraws from school for reasons such as illness, unusual personal or family problems, and the like, may petition the Dean's Office for an authorized administrative withdrawal. If approved, the student will receive the grade W for courses in progress. A student who withdraws from school without an authorized administrative withdrawal receives the grade W or F depending upon the date of withdrawal. The grade W is not included in the calculation of the grade point average.

Dead Week

Because Peabody classes integrate theory and practice, many courses include significant semester-long group and individual projects that culminate in papers, presentations, simulations, or other activities at the end of the semester. Therefore, while instructors are discouraged from scheduling quizzes, tests, or short-term assignments for the last week of the semester, Peabody's "dead week" policy does not prohibit assignments during the week before

finals.

Repeat Courses

If a course is repeated, only the last grade and credit hours earned will be used to calculate the grade point average and be creditable toward graduation. However, the original grade will appear on the transcript. Certain courses (e.g., special topics courses, directed study courses; see duplicate content section, below) may be repeated for credit when there is no duplication of content. Such courses may be repeated to replace a grade only when the content of the original and repeated courses is the same. Courses must be repeated in a graded status. This policy also applies to Advanced Placement credit. Courses taken at Vanderbilt may not be repeated elsewhere for grade replacement, nor may courses taken elsewhere be repeated at Vanderbilt for grade replacement.

Duplication of Course Content

It is the responsibility of the individual student to avoid duplication in whole or in part of the content of any courses offered toward the degree. Such duplication may result in the withdrawal of credit. This policy also applies to Advanced Placement credit.

Certain courses (e.g., ensemble, performance instruction, special topics, and directed study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester should not exceed 3 credit hours without permission.

Normal Course Load

Each semester, regular tuition is charged on the basis of a normal course load of 12 to 18 semester hours. No more than 18 or fewer than 12 hours may be taken in any one semester without authorization from the Associate Dean for Undergraduate Academic Affairs. There is an extra charge for more than 18 hours at the current hourly rate (contact Student Accounts).

Students permitted to take fewer than 12 hours are placed on academic probation, unless their light load is necessary because of health, family or outside employment. The one exception to this policy is that seniors who have fewer than 12 hours required for the completion of their degree; these students can take fewer than 12 hours in one of their last two semesters without penalty or requiring special permission.

Class Standing

To qualify for sophomore standing, a freshman must earn at least 24 hours with a grade point average of at least 1.800 and have completed two regular semesters. A freshman who fails to achieve sophomore standing at the end of two regular semesters is placed on probation and has one additional semester in which to qualify for sophomore standing. This additional semester must be the summer session at Vanderbilt. Normally, students who fail to qualify for sophomore standing in the third semester are dropped from the university.

A student qualifies for junior standing by earning 54 hours with a grade point average of at least 1.900 and having completed four regular semesters. Students who fail to qualify for junior standing at the end of two semesters after qualifying for sophomore standing are placed on probation and must qualify in an additional semester. This third semester must be the summer session at Vanderbilt. Normally, students who do not qualify for junior standing in this additional semester will be dropped from the university.

A student qualifies for senior standing by earning 84 hours with a grade point average of at least 2.000 and having completed six regular semesters. A student who fails to qualify for senior standing within two semesters of qualifying for junior standing will be placed on probation and must qualify in one additional semester. This additional semester must be the summer session at Vanderbilt. Normally, students who do not qualify for senior standing in this additional semester will be dropped from the university.

Alternate Track

Occasionally students find that it will be necessary to reduce their normal load due to medical reasons, varsity athletics, or other circumstances. The result is that they will accomplish the bachelor of science degree in nine or ten semesters instead of eight. In such cases, the student may request Alternate Track status. After discussing this option with their parents and faculty adviser, students petition the Associate Dean for Undergraduate Academic Affairs for permission. This normally takes place during the sophomore year. Additional information is available by contacting the Associate Dean for Undergraduate Academic Affairs.

Progress Evaluation

Students enrolled in Peabody College are expected to satisfy most Liberal Education Core requirements during the freshman and sophomore years. Although legitimate circumstances sometimes force the postponement of Liberal Education Core requirements, upper-level students are not expected to have a significant number of Liberal Education Core requirements outstanding. A student who, in the opinion of the faculty adviser, the department chair, or the associate dean for undergraduate academic affairs, is not making satisfactory progress toward meeting Liberal Education Core or other degree requirements may be reported to the Undergraduate Administrative Committee and is subject to being placed on academic probation by that committee. Students placed on academic probation for failure to make satisfactory progress toward a degree must remove the deficiency in the manner specified by the Administrative Committee.

Academic Probation and Dismissal

After achieving sophomore standing, the student may not be on academic probation for more than two semesters. A student whose academic record warrants a third semester of probation normally will be dropped from the university. Students will be placed on academic probation if any of the following conditions apply:

Freshmen

1. The student's cumulative grade point average falls below 1.800. Probation is removed (assuming there is no other reason for the probation) when the student's grade point average is raised to 1.800 or above.
2. The student fails to earn at least 12 hours in a regular semester as a freshman. Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress.
3. The student fails to achieve sophomore standing in the required two semesters. Probation is removed when the student achieves sophomore standing.
4. Freshmen who pass fewer than two regular courses in their first regular semester or who earn a grade point average lower than 1.000 have so seriously compromised their academic standing that they may be required to take an academic probationary leave of absence during the spring semester.

Sophomores

1. The student's cumulative grade point average falls below 1.800. Probation is removed (assuming there is no other reason for the probation) when the student's grade point average is raised to 1.800 or above, except that at the end of the second regular semester the student must qualify for junior standing.
2. The student fails to earn at least 12 hours in a regular semester as a sophomore. Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress.
3. The student is placed on probation by the Undergraduate Administrative Committee for failure to make satisfactory progress toward the degree. Probation is removed when the specified conditions are met.
4. The student fails to achieve junior standing in the required two semesters after achieving sophomore standing. Probation is removed when junior standing is achieved.

Juniors

1. The student's cumulative grade point average falls below 1.900. Probation is removed (assuming there is no other reason for the probation) when the grade point average is raised to 900 or above, except that at the end of the second regular semester the student must qualify for senior standing.
2. The student fails to earn at least 12 hours in a regular semester as a junior. Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress.
3. The student is placed on probation by the Undergraduate Administrative Committee for failure to make satisfactory progress toward the degree. Probation is removed when the specified conditions are met.
4. The student fails to achieve senior standing in the required two semesters after achieving junior standing.

Probation is removed when senior standing is achieved.

Seniors

1. The student's cumulative grade point average falls below 2.000. Probation is removed when the grade point average is raised to 2.000 or above.
2. The student fails to earn at least 12 hours in a regular semester as a senior, unless the semester is one in which the student needs fewer than 12 hours in order to complete the requirements for graduation (see section on Course Load, above). Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress and/or completes the requirements for graduation.

Sudden Academic Insufficiency

Any student who fails by a wide margin to reach prescribed levels of academic achievement, either at the end of a semester or at mid-semester, or who has been placed on probation more than once is reviewed by the Peabody Undergraduate Administrative Committee. The Committee considers each case within the general guidelines for maintenance of satisfactory academic standing and may take any of several actions, among which are the following:

- The student may be placed on probation;
- The student may be advised to take a leave of absence or to withdraw from the university;
- The student may be required to take an academic probationary leave of absence;
- The student may be dismissed from the university.

Under certain circumstances, a student who has been formally dismissed may be readmitted to Peabody. The Peabody Undergraduate Administrative Committee must review and approve any request for readmission.

Appeal and Petition Process for Undergraduate Academic Matters

The procedures of the appeal process pertaining to academic matters within Peabody College are listed below. Please see the chapter "Student Accountability" in the Vanderbilt University *Student Handbook* for a description of the appeal process for non-academic matters.

Petitions for exceptions to academic policies, appeals of academic policy implementations by Peabody Dean's Office staff, and appeals of academic actions by the Undergraduate Administrative Committee (UAC) Chair (e.g., letters of dismissal) may be directed to the full UAC.

Petitions and appeals should be sent to the Peabody Office of Academic Services - peabodyacademicservices@vanderbilt.edu, Peabody Administration Building.

A student may ask the UAC to reconsider a decision if the student has new information to offer. The chair of the UAC will decide whether the full UAC will reconsider. Requests for reconsideration of UAC decisions should be sent to the above address.

A final, negative decision of the UAC may be appealed to the dean of Peabody College (at the above address), who may assign an associate dean to handle the matter on the dean's behalf. The dean or associate dean will consult with the UAC and other relevant faculty or staff as part of the review of the decision.

Further appeals beyond Peabody College should be directed to the Provost's Office.

Grade Appeals

A student who believes they have received an inappropriate final grade in a class can appeal that grade if they believe the grade is inappropriate for at least one of the following reasons:

1. The student is held to different standards than other students in the course.
2. The instructor in determining the final grade applied standards that departed from those outlined in the course syllabus.

3. The student believes that there is a clerical error in the calculation or reporting of the grade.
4. The instructor did not adequately consider the student's needs for officially sanctioned and communicated accommodations.

Ultimately, the grade can be appealed following the academic appeals process outlined for more general academic matters, directly above. However, several steps to attempt to resolve the grade should be taken, in turn, before an appeal is submitted to the Undergraduate Administrative Committee (UAC).

First, students and instructors are encouraged to resolve grade disputes informally. If an informal process fails, the student may formally appeal a final course grade by contacting the instructor in writing within ten (10) business days after the start of the following semester. The student's written appeal must include the grounds for the appeal (see conditions 1 through 4 listed above), the change in grade that is being requested, and evidence to support the student's case for a grade change. The instructor must inform the student of his/her decision in writing.

Second, if the student does not feel the matter has been resolved satisfactorily with the instructor, the student may petition the director of undergraduate studies in the department where the course is housed. The petition for reviewing the appeal must include the original written appeal, the instructor's written response, and the reason why the student is dissatisfied with the instructor's decision. The DUS will review the materials and assess the merits of the case. If the DUS finds no basis for the grievance, the petition will be dismissed and the student will be notified in writing. If the DUS determines that the grievance has merit, the DUS will work with the parties to seek a resolution. If the DUS is the course instructor, the student may directly petition the department chair in which the course is housed.

Third, if the case is dismissed by the DUS, and the student does not agree with the grounds for the decision, the student may petition the chair of the department where the course is housed. The student is responsible for providing the department chair with relevant case documentation, including the original written appeal, the written responses of both the instructor and the DUS, and an explanation as to why the student is dissatisfied with the DUS's decision to dismiss the case. The department chair will decide the merits of the case and provide written documentation to all parties as to the decision. If the case is determined to have merit, the department chair will seek a resolution among the parties involved, including the student, the instructor, and the DUS. If the department chair is the course instructor, the student may appeal the DUS's decision directly to the Undergraduate Administrative Committee using the more general academic appeals process outlined in the previous Appeals section.

Fourth, if the case is dismissed by the department chair and the student does not agree with the grounds for the decision, the student may appeal the department chair's decision to the Undergraduate Administrative Committee using the more general academic appeals process outlined in the previous Appeals section.

Student Leave of Absence

A student desiring a leave of absence should obtain the appropriate forms from the Peabody Office of Academic Services website: peabody.vanderbilt.edu/admin-offices/oas/downloads.php. All students are eligible, provided they have not been dropped by the university and are not dropped at the end of the semester during which application is made.

Leaves are granted for one or two semesters. Applications should be completed before the end of the fall semester for a leave of absence during the spring semester and before 15 August for a leave of absence during the fall semester (or for the academic year). If the leave is approved, the student must keep the Dean's Office informed of any change of address while on leave.

Should a student seek to transfer to Vanderbilt credit earned elsewhere while on a leave of absence, it is mandatory that permission be obtained **in advance** from the Dean's Office. Petitions for leaves of this type must be filed at least one month before the close of the preceding semester.

While the student is on leave, registration information will be emailed to his or her Vanderbilt email address. A student failing to register at the conclusion of the stated leave will be withdrawn from the university and must apply for readmission.

Students who wish to participate in a non-Vanderbilt program in the United States, abroad, or at sea should apply for a leave of absence for the relevant semester. To qualify for such a leave, a student must be in good standing at Vanderbilt with at least a 2.700 grade point average as of the date of application. Students must obtain prior approval for the leave of absence and for the credits to be taken in other programs if the credits are to be transferred to Vanderbilt. Final approval of leaves of absence always rests with the Dean's Office. See the section on Transfer Credit in this chapter.

Withdrawal from the University

Students proposing to withdraw from the university during any semester must report to the Associate Dean for Undergraduate Academic Affairs to initiate proper clearance procedures. Students are graded on the same basis as if withdrawing from a course. Students who withdraw before the end of the eighth week of classes receive a partial refund of tuition (see the section on Financial Information).

Graduation

Degree candidates must have completed satisfactorily all curriculum requirements, have passed all prescribed examinations, and be free of indebtedness to the university. Graduation requirements vary with the student's program of study but include a minimum of 120 hours (at least 60 of which must have been earned at Vanderbilt) and a minimum cumulative grade point average of 2.000. A degree candidate must also have a 2.0 cumulative grade point average in his or her major.

Commencement. The university holds its annual Commencement ceremony following the spring semester. A student completing degree requirements will be officially graduated, however, at the close of the semester or summer session in which the degree is earned, with such graduation recorded on the student's permanent record. Students who graduate at the close of the summer session or the fall semester preceding the spring commencement ceremony are encouraged to join spring graduates in the graduation ceremony in May. Those unable to do so may receive their diplomas by mail.

Special Program in Peabody College

Peabody Scholars Program

First-year students who achieve academic distinction during their first semester at Vanderbilt are invited to apply to the Peabody Scholars Program. The Peabody Scholars Honors Program was established to offer particularly promising undergraduates at Peabody College opportunities for intellectual adventure, community service, and research. Emphasizing a theme of personal, professional, and civic creativity, the program is designed to foster students' potential by offering breadth through exposing students to a variety of academic and social experiences and depth by engaging in service-learning and independent research.

To graduate with honors through Peabody Scholars, scholars need to earn 24 points within the program. Scholars earn points from a series of required components as well as optional enrichment programming. All freshman Peabody Scholars participate in a 3-credit-hour Honors Seminar during the spring semester of their first year. In the sophomore year, scholars work together on a meaningful immersive service project in the local community. Each Peabody Scholar is offered a summer stipend (between sophomore and junior years) to support engagement in an individual service or intensive research project (either domestic or abroad). In the junior year, scholars engage in independent research projects with a faculty member. Senior scholars participate in both scholarly and cultural events. The Peabody Scholars Program also offers professional development, networking, and mentoring. The full list of current programming is available on the program website. In sum, the Peabody Scholars Program offers a rich array of enrichment experiences and opportunities.

Peabody freshmen may apply for the Peabody Scholars Program in the fall of their first semester at Vanderbilt. Selections will be made prior to the beginning of the spring semester. To be accepted into the program, students must have a first-semester GPA of 3.6. To remain in good standing in the program, students must maintain a minimum grade point average of 3.0. Further information on the Peabody Scholars Program may be obtained from Professor Megan Saylor in the Psychology and Human Development Department.

Interdisciplinary Majors

Language and Literacy Studies

Mathematics and Science Studies

Natural Science Studies

Second Language Studies

Social Studies

Peabody College, in conjunction with the College of Arts and Science, offers four interdisciplinary majors. These majors are to be taken as second majors only and are constructed around academic disciplines particularly appropriate for future teachers (except secondary), but are not limited to students entering teacher education. The interdisciplinary major consists of 36 hours of study and draws upon the academic resources of a number of departments throughout the University. Students follow the Liberal Education Core requirements of their first major.

Language and Literacy Studies (36 hours)

COMMUNICATIONS.

6 hours from:

CMST 1500, Fundamentals of Public Speaking; CMST 1850 Interpersonal Communications

ENGLISH.

9 hours from:

ENGL1230W, 1270W or 1260W and 1250W and 3210 and above

EDUCATION.

9 hours from:

ENED 2100, 2200 or 4963 (3 hours); ENED 2430, ENED 3310 (3 hours); SPED 2430 or PSY-PC 3150 (3 hours)

ADDITIONAL COURSES

12 hours from two areas:

ANTH 1601, Introduction to Language and Culture; ANTH 2601, Introduction to Linguistics; ANTH 2602, Anthropological Linguistics; ANTH 2603 Comparative Writing Systems; CMST 2800, Rhetoric of Civic Life; CMST 3000, Rhetoric of American Experience, 1640-1865; CMST 3001, Rhetoric of American Experience, 1865-1945; CMST 2900, Values of Modern Communication; CMST 3002, Rhetoric of the American Experience 1945-Present; CMST 2950, Rhetoric of Mass Media; PHIL1003, General Logic; PSCI 2242, Political Communication; THTR 1010, Fundamentals of Theatre

Mathematics and Science Studies (35–37 hours)

BIOLOGICAL SCIENCES.

4 hours from:

BSCI 1100 and 1100L, Biology Today; BSCI 1105, Human Biology; BSCI 1510 and 1510L, or BSCI 1511 and 1511L, Introduction to Biological Sciences; BSCI 1103, Green Earth, the Biodiversity and Evolution of Green Plants

CHEMISTRY.

4 hours from:

CHEM1010L and 1010, or CHEM 1020L and 1020, Introductory Chemistry; CHEM 1601 and 1601L, or CHEM 1602 and 1602L, General Chemistry

PHYSICS.

4 hours from:

PHYS 1010 and 1010L, Introductory Physics; PHYS 1601 and 1601L or 1602 and 1602L, General Physics

EARTH AND SPACE SCIENCES.

3-4 hours from:

ASTR 1010 and1010L, Introductory Astronomy: Stars and Galaxies; EES 1510 and 1510L, The Dynamic Earth; EES 1030 and 1030L, Oceanography; EES 1080, Earth and Atmosphere; EES 1140, Ecology, Evolution, and Climate through Time

HISTORY/ PHIILOSOPHY OF SCIENCE.

3 hours from:

ASTR 2130, Theories of the Universe; HIST 2800, Modern Medicine; PHIL 3616, Philosophy and the Natural Sciences

CALCULUS.

8-9 hours from:

MATH 1200, 1201, and 2200, Single-Variable Calculus I, II, and III; MATH 1300 and 1301, Accelerated Single-Variable Calculus I and II

PROBABILITY AND STATISTICS.

3 hours from:

MATH 2820 Introduction to Probability and Mathematics Statistics; MATH 3700, Discrete Mathematics; PSY-PC 2110 Introduction to Statistical Analysis

GEOMETRY.

3 hours from:

MATH 3200, Introduction to Topology; MATH 3210, Transformation Geometry; MATH 3310, Introduction to Mathematical Logic

ALGEBRA

3 hours from:

MATH 2410, Methods of Linear Algebra; MATH 2600, Linear Algebra; MATH 3300, Abstract Algebra

Natural Science Studies (35–36 hours)

BIOLOGICAL SCIENCES.

8 hours from:

BSCI 1100/1100L, Biology Today; BSCI 1105, Human Biology; BSCI 1510 and 1510L, and/or 1151 and 1151L, Introduction to Biological Sciences; BSCI 1103, Green Earth, the Biodiversity and Evolution of Green Plants

CHEMISTRY.

8 hours from:

CHEM 1010L and 1010 and/or 1020L/1020, Introductory Chemistry; CHEM 1601 and 1601L and/or 1602 and 1602L, General Chemistry

PHYSICS.

4 hours from:

PHYS 1010 and1010L, Introductory Physics; PHYS 1601/1601L or 1602 and 1602L, General Physics

EARTH AND SPACE SCIENCES.

3-4 hours from:

ASTR 1010/1010L Introductory Astronomy: Stars and Galaxies; EES 1510 and 1510L, The Dynamic Earth; EES 1030 and 1030L, Oceanography; EES 1080 Earth and Atmosphere; EES 1140, Ecology, Evolution, and Climate through Time

HISTORY/ PHIILOSOPHY OF SCIENCE.

3 hours from:

ASTR 2130, Theories of the Universe; HIST 2800, Modern Medicine; PHIL 3613, Philosophy and the Natural Sciences

ELECTIVES.

9 hours (3 additional courses) in:

Astronomy, Biological Sciences, Chemistry, Earth and Environmental Sciences, Physics, or History and Philosophy

Second Language Studies (36 hours)

EDUCATION.

9 hours from:

EDUC 3730, ELL Educational Foundations; EDUC 3750, Linguistics and Language Acquisition for ELL Teachers; ENGL 1260W, Introduction to Literary and Cultural Analysis

PSYCHOLOGY.

3 hours from:

PSY-PC 1250, Developmental Psychology; PSY-PC 2600, Educational Psychology

LINGUISTICS.

3 hours from:

ANTH 1101, Introduction to Linguistics; ENED 2430, Fostering Language in Diverse Classrooms; SPED 2430, Introduction to Language and Communication

FOREIGN LANGUAGE.

12 hours of language courses from:

Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Portuguese, Russian, or Spanish

ELECTIVES.

9 hours of elective courses are to be selected to reflect a concentration

within a specific foreign language. Students MUST consult with their advisers when selecting elective hours.

For elementary majors seeking an added endorsement in ELL, in addition to the above major requirements, the following 9 hours are required: EDUC 3740, ELL Methods and Materials (3 hours); EDUC 3760, Assessment of ELL (3 hours); EDUC 3731, 3742, and 3763, Practicum for ELL (3 hours)

Social Studies (36 hours)

Students selecting an interdisciplinary major in social studies will have seven options available to them. Each option requires 18 hours of study focused on a single social science discipline that is supplemented with 18 hours of course work drawn from studies within other social sciences. The seven options available to students include a focus on any of the following areas of study: Anthropology, Economics, American History, European History, American Politics, World Politics, or Sociology.

Anthropology

9 hours from:

ANTH 1101, Introduction to Anthropology; ANTH 1201 Introduction to Archaeology; ANTH 1301, Introduction to Biological Anthropology

9 hours in specified courses:

A Comparative Anthropology and Anthropological Theory Course (3 hours) An Archaeology and Physical Anthropology Course (3 hours)

An Ethnography, Ethnohistory, and Linguistics Course (3 hours)

Six courses (18 hours) drawn from at least three areas: Economics, History, Political Science, and Sociology

Economics

9 hours required from:

ECON 1010, Principles of Macroeconomics; ECON 1020, Principles of Microeconomics; ECON1500, Economic Statistics Additional 9 hours in Economics Courses

Six courses (18 hours) drawn from at least three areas: Anthropology, History, Political Science, and Sociology

United States History

6 hours from:

HIST 1390, America to 1776; HIST 1400, U.S. 1776-1877; HIST 1410, U.S. 1877-1945; HIST 1420, U.S. Post-1945

Additional four courses (12 hours) of United States History courses from:

HIST 1390-1440, 1660, 1690, 1720, 1730, 2580, 2590, 2610-2650, 2690-2722

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, Political Science, and Sociology

European History

6 hours from:

HIST 1350, History of Western Civilization to 1700; HIST 1360, History of Western Civilization since 1700

Additional four courses on European History from:

HIST 1600, 2130 2135, 2220-2410

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, Political Science, and Sociology

American Politics

3 hours from:

PSCI 1100, Intro. to American Government and Politics

Any five (15 hours) of the following PSCI courses: 2204, 2222, 2240-2246, 2248, 2251, 2255, 2256, 2259, 2262, 3247, 3249, 3250, 3252-3254,

3258, 3260, 4275

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, and Sociology

World Politics

3 hours from:

PSCI 1101, Introduction to Comparative Politics; PSCI 1102, Introduction to International Politics

Any five (15 hours) of the following PSCI courses: 2210, 2212-2216, 2218-2227, 2230-2234, 2236, 3211, 3217, 3228, 3229, 3235 Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, Sociology

Sociology

6 hours from:

SOC 1010, Introduction to Sociology, or SOC 1020, Contemporary Social Problems (3 hours); SOC 3001, Sociological Perspectives (3 hours)

4 courses (12 hours) 3 hours from each of the following areas:

A sociology course drawn from the core area of Crime, Law, and Deviance

A sociology course drawn from the core area of Organizations, Politics, and Inequality A sociology course drawn from the core area of Family, Medicine, and Mental Health A sociology course drawn from the core area of Culture and Social Change

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, and Political Science

Psychology and Human Development

Majors in Child Development, Child Studies, and Cognitive Studies

CHAIR Megan Saylor

ASSOCIATE CHAIR Kristopher Preacher

DIRECTOR OF GRADUATE STUDIES David Cole

DIRECTOR OF UNDERGRADUATE STUDIES Leigh Scheer

Major in Child Development

The child development major is designed for students who wish to study children (infancy through adolescence) and the family, cultural, peer, school, and neighborhood contexts in which they live. The major is designed to provide a strong background in the social and behavioral sciences related to child development, a focused understanding of the scientific study of children and the contexts in which they develop, and opportunities for supervised and independent research on aspects of child development in ways that enable students to link theories and prior research to research design and data on children's development. The major is excellent preparation for graduate study in selected social science and professional fields (e.g., psychology, medicine, nursing, education, public policy) and offers an excellent complementary (or second) major for undergraduate students simultaneously pursuing a major in cognitive studies, elementary education, human and organizational development, or special education.

The child development curriculum is designed to ensure that students develop a background in the liberal arts and sciences; a clear understanding of the theories, major research findings, and research methods central to the field of child development; and an area of focus or expertise in child development. Development of background in the

liberal arts and sciences occurs within the context of the Liberal Education Core, composed of required and elective courses in communications, humanities, mathematics, natural sciences, and social sciences. A clear understanding of theory and research central to the field is developed through the major core courses. These include an overview of child development, courses focused on the domains of psychological processes central to human development (cognition; social and personality development), courses related to major epochs of child development (infancy and adolescence), and courses devoted to the major research methodologies in the field (experimental, observational, psychometric). Students select an area of concentration (major elective area) to complement the field as a whole.

Honors Program

The Honors Program in child development offers qualified majors the opportunity to conduct individual research projects in collaboration with faculty members. This research experience culminates in the writing and public presentation of a senior thesis. Students who major in child development are eligible to apply for the Honors Program at the end of their sophomore year if they have an overall grade point average of at least 3.2 and at least a 3.2 in child development courses.

Students who complete the program successfully and who have a final grade point average of at least 3.2 will receive Honors or Highest Honors in child development. The program should substantially aid those intending to do graduate work. More specific information concerning admission to and the requirements of the Honors Program is available from the director of the Honors Program, the director of undergraduate studies, or the department education coordinator.

Curriculum

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 40 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (http://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

A score of 5 on the AP Statistics exam will waive students from the Statistics Liberal Education Core requirement (applied to all PSYHD majors). A score of 5 on the AP Statistics exam will serve as a pre-requisite in all places that PSY-PC 2110 currently serves as a pre-requisite.

Writing Requirement

See the "Writing Requirement" section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Major Requirements. 30 hours.

Students take a minimum of 30 hours in child development. The core consists of seven courses (21 hours) in developmental areas, epochs, and methods, and a minimum of three additional courses (9 hours) in an elective area of specialization.

Major Core. 21 hours.

PSY-PC 1250. Developmental Psychology

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2400. Social and Personality Development

PSY-PC 2120. Statistical Analysis One of the following two courses:

PSY-PC 2500. Infancy

PSY-PC 2550. Adolescent Development

Two of the following courses:

PSY-PC 2170. Experimental Methods, or

PSY-PC 2150. Principles of Experimental Design

PSY-PC 3722. Psychometric Methods

PSY-PC 3724. Psychometrics

PSY-PC 3220. Pediatric Research Design

PSY-PC 3860, 3980, 3981, 4998, 4999; PSY 3840, 3980, 4998, 4999. Directed Research or Honors Research (Only 3 hours of either Directed Research or Honors Research can be applied to this requirement.)

Major Elective Area. A minimum of 9 hours.

Any course in the Department of Psychology and Human Development (Peabody) or the Department of Psychology (A&S) that is not being used to meet another psychology requirement can be used as an elective (except, PSY 1200, PSY 2100, PSY-PC 1205/1207, 2110, 3870).

Additionally, the following courses may serve as electives. With the approval of the adviser, program director, or director of undergraduate studies, other courses may also be used as part of the child development elective area.

EDUC 3120. Children in Families and Schools

EDUC 3140. Learning and Development in Early Childhood Education

ENED 2430. Fostering Language in Classrooms

ENED 2100. Literature and Drama for Young Children

ENED 2200. Exploring Literature for Children

HODC 3232. Ethics for Human Development Professionals

HODC 3342. Introduction to Community Psychology

NSC 2201. Neuroscience

NSC 3269. Developmental Neuroscience

PHIL 3617. Philosophy of Language

PSY-PC 3850.* Independent Study

PSY-PC 3860.* Directed Research

PSY-PC 3980 or Psychology 3980, 3981, 4998, 4999* Honors Research

SPED 2120. Family Interventions

SPED 2160. Cultural Diversity in American Education

SPED 2310. Managing Academic and Social Behavior

SPEDH 3348. Language and Learning

SPEDS 2430. Introduction to Language and Communication

NOTE: Research/experiential courses marked * above may be repeated freely for elective credit toward graduation. However, only a total of 6 hours from among these courses, in any combination, may be used as elective credit within the major.

Second Major or Electives. 50 hours (or less if additional hours are earned in the Liberal Education Core, Major Core, or Major Elective Area).

Major in Child Studies

Peabody has long had great strength in the area of child studies. The 36-hour interdisciplinary major in child studies draws on courses from psychology, education, special education, and human and organizational development. The major is excellent pre-professional preparation for students interested in graduate school in psychology or education, in law (e.g., child and family advocacy), or in various health related areas (e.g., medicine, nursing) involving children. It is also appropriate for students who are interested in gaining a broader understanding of children and families in contemporary society. The major areas covered are: developmental psychology; learning; research methods; language and literacy; and families, community, and diversity.

Honors Program

The Honors Program in child studies offers qualified majors the opportunity to conduct individual research projects in collaboration with faculty members. This research experience culminates in the writing and public presentation of a senior thesis. Students who major in child studies are eligible to apply for the Honors Program at the end of their sophomore year if they have an overall grade point average of at least 3.2 and a 3.2 in child studies courses. Students who complete the program successfully and who have a final grade point average of at least 3.2 will receive Honors or Highest Honors in child studies. The program should substantially aid those intending to do graduate work. More specific information concerning admission to and the requirements of the Honors Program is available from the director of the Honors Program, the director of undergraduate studies, or the department education coordinator.

Curriculum

Students take a minimum of 120 hours, distributed as follows*:

Liberal Education Core Requirements. Minimum 40 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (http://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

*A score of 5 on the AP Statistics exam will waive students from the Statistics Liberal Education Core requirement (applied to all PSYHD majors). A score of 5 on the AP Statistics exam will serve as a pre-requisite in all places that 2110 currently serves as a pre-requisite.

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Child Studies Major Courses

DEVELOPMENT COURSES. *(9 hours)*

PSY-PC 1250. Developmental Psychology

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2400. Social and Personality Development

PSY-PC 2500. Infancy

PSY-PC 2550. Adolescent Development

LEARNING. ***(3 hours)***

MTED 2200. Mathematics for Elementary Teaching

SCED 2200 or SSED 2100

PSY-PC 2600. Educational Psychology

SPED 2310. Managing Academic and Social Behavior

RESEARCH METHODS. ***(3 hours)***

PSY-PC 2170. Experimental Methods, or

PSY-PC 2150. Principles of Experimental Design

PSY-PC 3722. Psychometric Methods

PSY-PC 3724. Psychometrics

HOD 2500. Systematic Inquiry

FAMILIES, COMMUNITY, AND DIVERSITY. ***(6 hours)***

EDUC 1220. Society, School, and the Teacher

EDUC/SPED 2160. Cultural Diversity in American Education

EDUC 3120. Children in Families and Schools

EDUC 3620. Social and Philosophical Aspects of Education

HODH 3221. Health Service Delivery to Diverse Populations

HODC 3202. Social Problems I

HODC 3342. Introduction to Community Psychology

SPED 1210. Introduction to Exceptionality

SPED 2120. Family Intervention

LANGUAGE AND LITERACY. ***(6 hours)***

ANTH 2601. Introduction to Linguistics

EDUC 3114. Language and Literacy Learning in Young Children

EDUC 3214. Theory and Method of Reading Instruction in Elementary Schools

ENED 2430. Fostering Language in Classrooms

ENED 2100. Literature and Drama for Young Children

ENED 2200. Exploring Literature for Children

PHIL 3617. Philosophy of Language

PSY-PC 3130. Introduction to Formal Linguistics

EDUC 3140. Learning and Development in Early Childhood Education

PSY-PC 3150. Language Development

SPEDS 2430. Introduction to Language and Communication

SPEDH 3348. Language and Learning

ELECTIVES IN CHILD STUDIES. ***(9 hours)***

Any course in the Department of Psychology and Human Development (Peabody) or the Department of Psychology (A&S) that is not being used to meet another psychology requirement can be used as an elective (except PSY 1200, PSY-PC 2100, PSY-PC 1205/1207, 2110, and 3870).

Additionally, the following courses may serve as electives. With the approval of the adviser, program director, or director of undergraduate studies, other courses may also be used as part of the child studies elective area.

ANTH 2601. Introduction to Linguistics

EDUC 1220. Society, the School, and the Teacher

EDUC 2160. Cultural Diversity in American Education

EDUC 3120. Children in Families and Schools

EDUC 3212. Introduction to Reading Processes and Assessment

EDUC 3214. Theory and Methods of Reading Instruction in Elementary Schools

EDUC 3620. Social and Philosophical Aspects of Education

ENED 2200. Exploring Literature for Children

ENED 2430. Fostering Language in Diverse Classrooms

HOD 2500. Systematic Inquiry

HODC 3342. Introduction to Community Psychology

MTED 2200. Mathematics for Elementary Teachers

PHIL 3617. Philosophy of Language

SPED 2160. Cultural Diversity in American Education

SPEDH 3348. Language and Learning

SPEDS 2430. Introduction to Language and Communication

PSY-PC 3850.* Independent Study

PSY-PC 3860.* Readings and Research for Undergraduates

PSY-PC 3980, 3981, 4998, 4999, or PSY 3980, 3981, 4998, 4999.* Honors Research

HOD 3232. Ethics for Human Development Professionals

HODC 3202. Community Development Theory

NOTE: Research/experiential courses marked * above may be repeated freely for elective credit toward graduation.

However, only a total of 6 hours from among these courses, in any combination, may be used as elective credit within the major.

Major in Cognitive Studies

The cognitive studies major is designed for students who wish to become active inquirers into the processes by which people learn to think, solve problems, and reason. The major encourages the development of flexible reasoning and problem-solving skills that are useful in a wide variety of endeavors. The major is excellent preparation for graduate study in the social and behavioral sciences as well as for areas (such as medicine and law) that place importance on inquiry and clear thinking.

The curriculum is planned to ensure that students receive a strong background in both science and the liberal arts, with an emphasis on problem solving and complex decision making. The courses in the core curriculum focus on various aspects of human cognition, including communication, cognitive development, basic cognitive processes, applications of theories of knowledge, and sociocultural aspects of learning. Students are encouraged to consult their advisers about pursuing a second major or developing an area of concentration that is consistent with their career plans. The major also emphasizes an appreciation of the scientific method and the research process; numerous opportunities exist to pursue independent study in close collaboration with faculty members.

Leadership and success in our society will depend increasingly on one's ability to process complex information, solve difficult problems using systematic analysis, and facilitate the learning of others. The knowledge and experience gained by students in cognitive studies will allow them to be full participants in the society of learners who represent the future.

Honors Program

The Honors Program in cognitive studies offers qualified majors the opportunity to conduct individual research projects in collaboration with faculty members. This research experience culminates in the writing and public presentation of a senior thesis. Students who major in cognitive studies are eligible to apply for the Honors Program at the end of their sophomore year if they have an overall grade point average of at least 3.2 and a 3.2 in cognitive studies courses. Students who complete the program successfully and who have a final grade point average of at least 3.2 will receive Honors or Highest Honors in cognitive studies. The program should substantially aid those intending to do graduate work. More specific information concerning admission to and the requirements of the Honors Program is available from the director of the Honors Program, the director of undergraduate studies, or the department education coordinator.

Curriculum

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 40 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (http://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

A score of 5 on the AP Statistics exam will waive students from the Statistics Liberal Education Core requirement (applied to all PSYHD majors). A score of 5 on the AP Statistics exam will serve as a pre-requisite in all places that 2110 currently serves as a pre-requisite.

Writing Requirement

See the "Writing Requirement" section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair

School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Major Requirements. 33 hours.

Students take a minimum of 33 hours in Cognitive Studies. The core consists of four courses (12 hours), a minimum five additional courses (15 hours) in the elective area, and two courses (6 hours) in the Methods of Inquiry area.

Major Core. 12 hours.

PSY-PC 1205 *or* 1207. Minds, Brains, Contexts, and Cultures

PSY-PC 2200. Psychology of Thinking *or* PSY-PC 3120. Cognitive Psychology

PSY-PC 3650. Advanced Topical Seminar

One of the following:

PSY-PC 2170. Experimental Methods *or* PSY 2150. Principles of Experimental Design

Methods of Inquiry. 6 hours.

May also be used to satisfy Liberal Education Core requirements

ANTH 1301, 2211

CHEM 2100

CS 1100. Applied Programming and Problem Solving with Python

CS 1101 or 2212

CS 1103 Intro to Programming for Engineer and Science

EES 2250

EES 3250

HOD 2500

HODC 3222

PHIL 1003, 3003, 3616

PSY-PC 2120, 3722, 3724

PSY 3840

PSY 3980

PSY 3981

PSY-PC 3220. Pediatric Research Design

PSY-PC or PSY 3980, 3981, 4998, 4999 (Only 3 hours from any of these courses can be applied to this requirement)

SOC 3002

SPED 2310

SPEDH 3871/SPEDS 3871

DS 1000. Data Science: How Data Shape our World

Major Elective Area. 15 hours.

Any course in the Department of Psychology and Human Development (Peabody) or the Department of Psychology (A&S) that is not being used to meet another psychology requirement can be used as an elective (except PSY-PC 1250, 2110, 3870, PSY 1200, PSY 2100).

Additionally, the following courses may serve as electives. With the approval of the adviser, program director, or director of undergraduate studies, other courses may also be used as part of the cognitive studies elective area.

ANTH 1301. Biological Anthropology

ANTH 2601. Introduction to Linguistics

ENED 2430. Fostering Language in Classrooms

EDUC 3140. Learning and Development in Early Childhood Education

NSC 2201. Neuroscience

NSC 3270. Computational Neuroscience

PHIL 3617. Philosophy of Language

PHIL 3630. Philosophy of Mind

PSY-PC 3850.* Independent Study

PSY-PC 3860, PSY 3840.* Directed Research

PSY-PC 3980, 3981, 4998, 4999, or PSY 3980, 3981, 4998, 4999.* Honors Research

SPEDS 2430. Introduction to Language and Communication

PSY 4218. Computational Cognitive Modeling

SPEDH 3348. Language and Learning

SPEDS 2430. Into Lang. & Communication

NOTE: Research/experiential courses marked * above may be repeated freely for elective credit toward graduation. However, only a total of 6 hours from among these courses, in any combination, may be used as elective credit within the major.

Second Major and Electives. 51-52 hours.

Minors

The Minor in Child Development

The minor in child development consists of 18 hours in the following courses:

PSY-PC 1250. Developmental Psychology

PSY-PC 2110. Introduction to Statistical Analysis (may be taken as part of the Liberal Education Core)

One of the following:

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2400. Social and Personality Development

One of the following:

PSY-PC 2500. Infancy

PSY-PC 2550. Adolescent Development

One of the following:

PSY-PC 2170. Experimental Methods

PSY-PC 2150. Principles of Experimental Design

PSY-PC 3722. Psychometric Methods

One child development elective course

(Any of the courses above not taken to meet a minor requirement or any course listed as an elective for the child development major)

The Minor in Child Psychology and Mental Health

The minor in Child Psychology and Mental Health is offered through the Peabody Department of Psychology and Human Development. Its focus is on (a) the development of psychopathology, including depression, anxiety, and behavioral disorders, (b) evidence-based assessment and treatment of psychological disorders in children and adolescents, and (c) clinical science research methods. Given the centrality of emotional and behavioral functioning in human life, knowledge of these areas of scholarship will be useful to students interested in the behavioral sciences and education in general and is particularly relevant for those interested in clinical research careers.

Structure of the Minor

Required (Core) Courses (6 credit hours):

PSY-PC 3200 Introduction to Clinical Psychology

AND

PSY-PC 2700 Abnormal Child Psychology

Elective Courses (9 credit hours):

PSY-PC 2520 Infant and Early Childhood Mental Health

PSY-PC 3650 Developmental Disabilities

PSY-PC 3650 Clinical Interventions in Vulnerable Populations

PSY-PC 3650 Multiple Facets of Human Diversity

PSY-PC 3650 Coping with Stress

PSY-PC 3230 Play-Based Approaches to Family Stress and Coping

PSY-PC 3650 Grief and Loss

PSY-PC 3860 Directed Research (must involve work on a study or project related to clinical psychology; maximum 3 hours)

PSY 3625 Depression

PSY 3100 Abnormal Psychology

SPEDS 2120 Issues in Family Intervention

SPEDH 3308 Understanding Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3318 Assessment for Students with Severe and Persistent Academic and Behavior Difficulties

***Important:** There must be 15 unique hours for the minor that are not being used for any other major or minor.

The Minor in Cognitive Studies

The minor in cognitive studies consists of 15 hours in the following courses:

REQUIRED COURSES. *(6 hours)*

PSY-PC 1205 *or* PSY-PC 1207. Minds, Brains, Contexts, and Cultures

PSY-PC 2200. Psychology of Thinking *or* Psy 3120. Cognitive Psychology

ELECTIVE COURSES. *(9 hours)*

ANTH 2601. Introduction to Linguistics

ENED 2430. Fostering Language in the Classroom

PSY-PC 1115 or PSY-PC 1157. First-Year Seminar

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2300. Social and Emotional Context of Cognition

PSY-PC 2400. Social and Personality Development

PSY-PC 3150. Language Development

PSY-PC 3650. Advanced Topical Seminar (Intended for students beyond the first year. May be repeated if no duplication of content.)

PSY-PC 3775. Human Memory

PSY-PC 3635. Health Psychology

PSY-PC 3200. Introduction to Clinical Psychology

PSY-PC 3860, 3980, 3981,4998, 4999. Directed Research/Honors Research (may *not* be repeated for minor credit)

SPEDS 2430. Introduction to Language and Communication

The Minor in Language Sciences

The minor in Language Sciences is offered through the Department of Psychology and Human Development. The emphasis is on language theory and research in the behavioral sciences. A working knowledge of the basic processes involved in speaking, understanding, and reading will be beneficial to students interested in the learning sciences. Total of 15 credit hours. Program or track requirements.

Two of the following (6 credit hours):

PSY-PC 3130: Introduction to Formal Linguistics

PSY-PC 3140: Psychology of Language

PSY-PC 3190; Language and the Brain

Three of the following (9 credit hours):

ANTH 1601: Introduction to Language and Communication

PSY-PC 3150: Language Development

PSY-PC 3160: Bilingualism

PSY-PC 3170: Cognitive Science of Reading

PSY-PC 3180: How We Talk

PSY-PC 3190: Language and the Brain

PSY-PC 3860: Directed Research - Must work on a study or project related to language sciences

SPEDH 3348: Language and Learning

SPEDS 2430: Introduction to Language and Communication

PHIL 3617: Philosophy of Language

*You may also use the additional third class from the required courses for this credit

The Minor in Quantitative Methods

Quantitative skills are highly valued in a variety of fields. Training provided by the quantitative methods minor can provide a competitive edge on the job market or for future graduate study. Many advances in quantitative methods used in the social sciences and education are not covered in standard undergraduate introductory statistics courses. This minor exposes students to more recent developments in quantitative methods with concrete applications to practice. The quantitative methods minor helps students become better consumers and producers of scientific research. Students will have the opportunity to learn from leading experts in the statistical analysis of social science data.

Structure of the Minor

Prerequisite for the minor is completion of the introductory statistics sequence that is already required by the undergraduate psychology majors. This sequence is:

PSY-PC 2110 or PSY 2100 or ECON 1500 or MATH 2810 or a 5 on AP Stat Exam

And

PSY-PC 2120. Statistical Analysis *(3 hours)*

The quantitative methods minor is an 18-hour minor. The 18 hours include both PSY-PC-2110 (or PSY 2100 or ECON 1500 or MATH 2810 or a 5 on AP Stat Exam) and PSY-PC 2120, and these serve as prerequisite courses for the electives. Following completion of these prerequisite courses (6 hours; required), the minor requires four additional courses (12 hours; electives). Any four courses offered by the Quantitative Methods program are applicable. At most, three hours of directed research/independent study can count toward the minor. Students with interest in directed research/independent study can contact individual quantitative methods faculty directly.

Courses that would satisfy the elective requirements (pick 4):

PSY-PC 3722. Psychometric Methods

PSY-PC 3724. Psychometrics

PSY-PC 3727. Modern Robust Statistical Methods

PSY-PC 3730. Applied Latent Class and Mixture Modeling

PSY-PC 3732. Latent Growth Curve Modeling

PSY-PC 3735. Correlation and Regression

PSY-PC 3738. Introduction to Item Response Theory

PSY-PC 3743. Factor Analysis

PSY-PC 3746. Multivariate Statistics

PSY-PC 3749. Applied Nonparametric Statistics

PSY-PC 3850. Independent Study

Prior to enrolling in a specific course, please contact the instructor regarding prerequisite courses. Undergraduates may request to be enrolled in QM graduate courses not yet cross-listed as undergraduate courses by using a substitution form, with permission of instructor. We anticipate adding more courses to the list of electives, which will be posted on the minor's website.

For inquiries about the quantitative methods minor, email kris.preacher@vanderbilt.edu.

Teaching and Learning

Majors in Early Childhood and Elementary Education, and Secondary Education and Minor in Teaching Linguistically Diverse Students

Elementary Education

Secondary Education

Teaching Linguistically Diverse Students

CHAIR Noel Enyedy

ASSOCIATE CHAIR Melanie Hundley

DIRECTOR OF GRADUATE STUDIES Heidi Carlone

DIRECTOR OF UNDERGRADUATE STUDIES Catherine McTamaney

Elementary Education

The specialization in elementary education is field-oriented and designed to prepare students to teach children in grades K-5. Beginning in the freshman year, students observe and participate in local schools and experimental classrooms on campus. Most Liberal Education Core courses are taken in the College of Arts and Science.

Students must combine a specialization in elementary education with a second major in the liberal arts, an interdisciplinary major, or another major offered by Peabody College or the College of Arts and Science. Course work beyond the standard 120-hour program may be required for some double majors.

Vanderbilt students seeking teacher licensure must apply through the Office of Teacher Licensure at Vanderbilt and must meet licensure requirements in effect at the time of their graduation, which may be different from licensure requirements in effect at the time they entered the program. Licensure requirements are currently undergoing change. Each year, teacher licensure candidates should consult the current Vanderbilt *Undergraduate Catalog,* the *Undergraduate Guide to Teacher Licensure* published by the Vanderbilt Office of Teacher Licensure, and the *Undergraduate Handbook* published by the Office of Undergraduate Academic Affairs.

B.S. Degree Requirements

Elementary Education (K–5 Licensure)

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Professional Education Core. 28 hours.

EDUC 1220, 3212, 3214, 3215, 3270; MTED 3250; SCED 3240; SSED 3240; HMED 2250; SPED 1210; PSY-PC 2600

Field Experiences. 15 hours.

EDUC 3216, 3240, 4952, 4962; MTED 3251

An approved second major is required.

Secondary Education

The major in secondary education is designed to prepare the student to teach one or more subjects at the secondary level (grades 6–12). Students must complete Liberal Education Core requirements, Professional Education requirements, and a primary area of emphasis in at least one endorsement field, which involves 31 to 40

hours of course work in the discipline and results in a major in that area as defined by the College of Arts and Science. Specific requirements for a second area of endorsement may be obtained from the Office of Teacher Licensure in the Peabody Administration Building. Students must take the appropriate methods course for each area of endorsement.

Vanderbilt students seeking teacher licensure must apply through the Peabody Office of Teacher Licensure and must meet licensure requirements in effect at the time of their graduation, which may be different from licensure requirements in effect at the time they entered Vanderbilt. Licensure requirements are currently undergoing change. Each year, teacher licensure candidates should consult the current Vanderbilt *Undergraduate Catalog,* the *Undergraduate Guide to Teacher Licensure* published by the Vanderbilt Office of Teacher Licensure, and the *Undergraduate Handbook* published by the Office of Undergraduate Academic Affairs.

B.S. Degree Requirements

Secondary Education (6–12 Licensure)

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the *Peabody Undergraduate Handbook* (peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

All Peabody College freshmen who have not earned a combined score of 660 on the evidence-based reading and writing component of the redesigned SAT with minimum scores of 27 on the reading component and 28 on the writing and language component, or ACT English test score of 30 or above, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 1100 Before graduation, all Peabody students must successfully complete two writing courses. Writing-intensive courses either have a “W” after the course number (A&S courses) or end with the digit "7" (Peabody courses). ENGL 1220W, 1230W, and 1300W earned by testing credit such as AP or IB credit will not satisfy the Writing requirement.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Secondary Education Undergraduate Courses

FOUNDATIONAL AND CORE COURSES

EDUC 1220. School and Society [3]

SPED 1210. Introduction to Exceptionality [3]

PSY-PC 2550. Adolescent Development [3]

EDUC 3620. Social and Philosophical Foundations of Education [3]

EDUC 3310. Classroom Ecology [3]

FIELD BASED COURSES

EDUC 3871. Practicum in Secondary Education I [1]

EDUC 3280: Planning & Assessment Strategies [3]

ENED, MTED, SCED, or SSED 3371. Professional Year Practicum [3]

EDUC 4953. Student Teaching in the Secondary School [9]

CONTENT AREA COURSES

English

ENED 3340. Reading and Learning with Print and New Media [3]

ENED 3357. Literature, Pop Culture, and New Media [3]

ENED 3370. Teaching Literature and New Media in the Secondary Schools [3]

ENED 3380. Teaching Writing in Secondary Schools [3]

ENED 4963. Student Teaching Seminar: Secondary [3]

Mathematics

MTED 3320. Introduction to Literacies in Mathematics [3]

MTED 3360. Computers, Teaching, and Mathematical Visualization [3]

MTED 3370. Teaching Mathematics in Secondary School [3]

MTED 4963. Student Teaching Seminar: Secondary [3]

Science

SCED 3320. Introduction to Literacies in Science [3]

SCED 3400. Modeling in the Secondary Classroom [3]

SCED 3370. Teaching Science in Secondary Schools [3]

SCED 4963. Student Teaching Seminar: Secondary [3]

Social Studies

SSED 3320. Introduction to Literacies in Social Studies [3]

SSED 3260. Human Geography [3]

SSED 3370. Teaching Social Studies in Secondary Schools [3]

SSED 4963. Student Teaching Seminar: Secondary [3]

		English Education	Mathematics Education	Science Education	Social Studies Education
F i r	Fall	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)

st Year	Spring	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)
Second Year	Fall	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (12-15 hrs)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) MTED 3360 (3) OR Fall Third Year Liberal Core and 2nd Major (8-10 hrs)	**PSY-PC 2550 (3) &** **EDUC 3871 (1) OR** **EDUC 3620 (3)** Liberal Core and 2nd Major (12-15 hrs)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (12-15 hrs)
	Spring	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (12-15 hrs)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) MTED 3320 (3) or Spring Third Year Liberal Core and 2nd Major (12-15 hrs)	**PSY-PC 2550 (3) &** **EDUC 3871 (1) OR** **EDUC 3620 (3)** **SCED 3400 (3)** Liberal Core and 2nd Major (12-15)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (11-15)
Third Year	Fall	**EDUC 3720 (3)** **ENED 3340 (3)** **ENED 3310 (3)** **EDUC 3280 (3) fall or spring** Liberal Core, 2nd Major & Electives (6-9 hrs)	**EDUC 3720 (3)** **MTED 3360 (3) or spring** MTED 3320 (3) EDUC 3280 (3) fall or sping Liberal Core, 2nd Major & Electives (9-12 hrs)	**EDUC 3720 (3) (or spring)** **SCED 3320 (3) or spring** EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (6-9 hrs)	**EDUC 3720 (3)** **SSED 3260 (3)** SSED 3320 (3) EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (9-12 hrs)
	Spring STUDY ABROAD TERM	ENED 3350 (3) EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (12-15 hrs)	EDUC 3280 (3) fall or spring MTED 3320 (3) or Spring Third Year Liberal Core, 2nd Major & Electives (15-18 hrs)	**EDUC 3720 (3)** (or fall) EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (12-15 hrs)	EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (15-18 hrs)
Fourth	Fall	EDUC 3310 (3) ENED 3371 (3) ENED 3370 (3) ENED 3380 (3) 2nd Major and Electives (5-8 hrs)	EDUC 3310 (3) MTED 3371 (3) MTED 3370 (3) 2nd Major and Electives (9-11 hrs)	**EDUC 3310 (3)** **SCED 3370 (3)** **SCED 3371 (3)** 2nd Major and Electives (9-11 hrs)	EDUC 3310 (3) SSED 3371 (3) SSED 3370 (3) 2nd Major and Electives (6-8 hrs)

h Year	Spring	EDUC 4953 (9) ENED 4963 (3)	EDUC 4953 (9) MTED 4963 (3)	**EDUC 4953 (3)** **SCED 4963 (3)**	EDUC 4953 (3) SSED 4963 (3)

NOTE: When planning a **study abroad semester**, move any courses listed in bold for the spring semester of the third year to an earlier semester. EDUC 3720 is a required course. However, students seeking ESL endorsement may use EDUC 3730 to meet this requirement.

B.S. Degree Requirements

Educational Studies

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located on the online *Peabody Undergraduate Handbook* (peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Major Foundations. 9 hours.

EDUC 1220 Society, School & Teacher, SPED 1210 Introduction to Exceptionality, PC-PSY 1250 or 2550 Developmental Psychology

Learning and Equity in Diverse Contexts Specialization

Learning and equity in diverse contexts is focused on the interaction of learning, design, and context in out-of-school settings, attracting students who are interested in learning in informal settings. This specialization is appropriate for students who envision themselves working and learning with students out of traditional classroom settings.

Note: Students may enroll in this specialization after matriculation to the university, but may not be admitted directly into this program. Educational Studies can serve as a student’s first or second major, but must be a third major or minor if combined with a licensure program. Students must use the Change of Major/Minor Declaration/Change form to declare educational studies as their first, second, or third major.

LEARNING, DEVELOPMENT AND CONTEXT CORE *(9 hours chosen from the following)*

EDUC 3140. Learning and Development in Early Childhood Education

EDUC 2160. Cultural Diversity in American Education

EDUC 3120. Children in Families and Schools

EDUC 2920. Social & Philosophical Aspects of Education

FIELD WORK IN EDUCATIONAL STUDIES *(12 hours)*

EDUC 3861. Initial Fieldwork in Educational Studies [3]

EDUC 3862. Advanced Fieldwork in Educational Studies [3]

EDUC 4950. Capstone Fieldwork in Educational Studies [6]

PLUS ELECTIVE COURSES *(3 hours)*

EDUC 3180/3270. Managing Instructional Settings

ENED 2430. Fostering Language in Diverse Classrooms

ENED 3350. Literature, Popular Culture & New Media

HMED 2150/2250. Children's Development in the Arts

MTED 2200. Children's Mathematical Thinking and Learning

MTED 3320. Intro to Math Literacies

MTED 3360. Math Visualizations

PSY-PC 2600. Educational Psychology

PHIL 3603. Philosophy of Education

SCED 3320. Intro to Science Literacies

SSED 2200. Scientific and Historical Reasoning in Children

SSED 3260. Human Geography

SPED 3332. High Poverty Youth

Additional courses as approved by adviser and UAC

Elementary Education and Secondary Education Specializations

These are alternative education studies specializations that are available only to students with these first majors who discover they are unable to complete their major requirements pre-student teaching after it is too late to complete a different first major to graduate. These educational studies specializations are initiated by the director of undergraduate studies, in consultation with the student and the elementary or secondary education major advisers. Students must use the Change of Major/Minor Declaration/Change form to declare education studies as their first or second major.

Elementary Specializations *(23 hours)*

EDUC 3212. Introduction to Reading Processes and Assessment [3]

EDUC 3214. Reading in Elementary Schools [3]

EDUC 3215. Language Arts in Elementary Schools [3]

MTED 3250. Teaching Mathematics in Elementary Schools [2]

SSED 3240. Teaching Social Studies in Elementary Schools [2]

SCED 3250. Teaching Science in Elementary Schools [2]

HMED 2250. Introduction to Arts Education [2]

EDUC 3270. Managing Instructional Settings [2]

EDUC 3216. ELE Practicum: Language and Literacy [1]

EDUC 3240. ELE Practicum: Science and Social Studies [1]

MTED 3251. ELE Practicum: Mathematics and Science [1]

PSY-PC 2600. Educational Psychology [3]

Secondary Specialization *(21 hours)*

EDUC 3310. Teaching in Secondary Schools [3]

EDUC 3720. Foundations for Teaching Linguistically Diverse Students [3]

EDUC 3620. Foundations of Education [3]

SCED/MTED/SSED 3370 [3] or ENED 3380. Teaching Methods in Secondary Schools [3]

ENED/SCED/MED/SSED 3370. Teaching Methods in Secondary Schools [3]

EDUC 3871. Practicum in Secondary Education I [1]

EDUC 3280. Planning & Assessment Strategies [3]

ENED/SCED/MTED/SSED 3371. Professional Year Practicum [3]

SCED 3400. Modeling in the Secondary Classroom [3]

MTED 3360. Computers, Teaching, and Mathematical Visualization [3]

SSED 3260. Human Geography [3]

ENED 3357. Literature, Pop Culture, and New Media [3]

ENED 3310. Language Study in the Secondary Classroom [3]

Plus 3 hours of electives

Minor in Teaching Linguistically Diverse Students

Required Core: (15 hours)

- EDUC 3730, ELL Educ Foundations – 3 hours
- EDUC 3740, English Language Learner Methods and Materials – 3 hours
- EDUC 3742, Practicum: Multilingual Learners – 3 hours
- EDUC 3750, Linguistics and Language Acquisition for English Language Learner Teachers – 3 hours
- EDUC 3760, Assessment of English Language Learners – 3 hours

Human and Organizational Development

Major in Human and Organizational Development

Curriculum

Honors Program

The Minor in Human and Organizational Development

CHAIR Nicole E. Allen

ASSOCIATE CHAIR Nicole A. Cobb

DIRECTOR OF GRADUATE STUDIES Brian D. Christens

DIRECTOR OF UNDERGRADUATE STUDIES Leigh Z. Gilchrist

The Human and Organizational Development (HOD) major prepares students to address complex social problems in organizations and communities. The HOD curriculum challenges students to view human problems and their solutions in organizations and communities. The HOD curriculum challenges students to view human problems and their solutions as embedded in broader social ecological systems. HOD coursework draws on a range of disciplinary perspectives (e.g., psychology, organizational studies, sociology, political science, anthropology, geography, economics), and explores societal issues across distinct levels of analysis (e.g., individual, group, organization, community, policy, international). HOD coursework engages students through active learning approaches involving teams, simulations, case studies, field experiences, and interaction with academic researchers and professionals in the field. These experiences support the development of the following *HOD Core Competencies* that will help students succeed in people-oriented organizational roles:

1. *Written communication* - with emphasis on developing a clear, concise, expository style and mastering the practical forms used in professional situations.
2. *Oral presentation* - with emphasis on making informative and persuasive presentations with the effective use of technology and media.
3. *Analytic and critical thinking* - with emphasis on data-driven analysis, creativity, and systems thinking to recognize, define and work to solve personal, professional, organizational, and social problems.
4. *Interpersonal communication* - with emphasis on inquiry, advocacy, leadership, and conflict resolution skills.
5. *Collaborative work behaviors* - with emphasis on motivating others, managing talent, and teamwork.

CURRICULUM

Peabody Liberal Education Core Requirements (40 hours)

The Liberal Education Core provides students with a strong liberal arts foundation. It is composed of required coursework from the areas of Communications, Humanities, Quantitative Analysis, Natural Science, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (peabody.vanderbilt.edu/admin-offices/oas/downloads.php). In addition, students must complete two writing intensive courses. See the "Writing Requirement" section of the general Peabody academic policy section of the Undergraduate Catalog.

HOD Major Requirements (45-48 Hours)

Human and Organizational Development Professional Core (15 hours): The HOD Core introduces students to ecological systems thinking, theories of human, group, community, organizational, and policy development, and quantitative & qualitative approaches to research and problem solving. Courses include: HOD 1250 *Applied Human Development*; HOD 1300 *Small Group Behavior*; HOD 2100, *Understanding Organizations*; and HOD 2500 *Systematic Inquiry*; HOD 2700 *Public Policy*. These courses are designed to help students:

1. Understand the basic principles and typical patterns of human development across the life span and use this knowledge to understand their own behavior and the behavior of others;
2. Understand the principles of group dynamics and use this knowledge to provide leadership and facilitate decision making in small group and team settings;
3. Understand theories of organizations and apply them to the solution of organizational problems;
4. Understand the critical role that community contexts play in shaping individual, group, and organizational well-being;
5. Apply quantitative and qualitative methods of systematic inquiry and analysis;
6. Understand public policy processes and the factors that influence policy making;
7. Understand the ethical dimensions of personal and organizational decisions and apply this understanding to analyze social issues and make professional and personal decisions;
8. Develop enhanced skills of synthesis including the ability to integrate ideas from various sources and to design innovative programs.
9. Understand and engage in practices and policies that ensure inclusion of diverse populations and perspectives.

The program design will endow you with the skills and knowledge needed to succeed in a people-oriented organizational role.

Human and Organizational Development Domains (18 Hours): Domain courses build on the foundational courses in the HOD Professional Core. Students will choose courses that will help them develop breadth and depth across levels of analysis in topic areas of interest. Students must complete two courses in each of the following three domains:

Individual/Interpersonal Domain: Courses in this domain delve deeper into personal and professional development and explore topics, including but not limited to, leadership, professional ethics, youth development, professional development, and mental health and well-being. Through these courses students will develop professional skills in data management, research, individual and team leadership, human-centered design, and interpersonal conflict resolution.

Organizational/Group Domain: Courses in this domain explore recent advances in organizational theory and innovative management strategies in for-profit, non-profit, and public sector organizations in the U.S. and international contexts. Course topics include, but are not limited to organizational effectiveness, organizational change management, and social entrepreneurship. Courses use case studies and practical application to prepare students to engage organizational challenges in an increasingly complex and dynamic world.

Community/Policy Domain: Courses in this domain invite students to critically examine the causes and consequences of complex social problems from a systems perspective and explore community- and policy-level approaches to change and intervention. Courses address a range of local and global topics and consider the diverse perspectives of marginalized communities. These topics include, but are not limited to educational equity, environmental justice and sustainability, violence prevention, and economic development, as well as poverty-related challenges such as fair and affordable housing, employment, health disparities, transportation, neighborhood safety, and resource provision.

Human and Organizational Development Capstone: *(12 credit hours/Summer or 15 credit hours/Fall or Spring semesters)*: The Capstone is the immersive learning academic semester for junior and senior students in the Human and Organizational Development (HOD) major at Vanderbilt University. It is designed for students to apply the core HOD coursework and develop data-driven and research-grounded contributions to address human problems in organizations and communities. The HOD capstone requires 28 hours a week with the confirmed site and a weekly 3-hour seminar. The experience is possible in fall, spring or summer semesters. The HOD Capstone office has preexisting relationships with sites in Nashville, Chicago, New York City, San Francisco, Washington D.C. and London, England. However, students are not limited to these cities.

The HOD philosophy emphasizes the importance of connecting academic knowledge and theories to professional practice. HOD undergraduate core requirements offer an applied liberal arts education that will endow students with the skills and knowledge needed to succeed in organizations and communities. The capstone semester is designed to provide students the opportunity to synthesize the HOD coursework and learning experiences in an organizational context - which is central to the foundation of the applied learning experience and mission of our degree.

HOD majors (juniors and seniors) who have successfully completed the HOD 4949 Capstone Design requirements, approved for the HOD Capstone by the HOD Capstone Office, and completed the HOD core class prerequisites including HOD 1250, 1300, 2100, 2400 (not required for students who entered Summer 2023 or later), 2500, and 2700 are eligible to register for HOD 4950, 4951, 4952 and 4953.

Students enroll in a semester-long course, HOD 4949, prior to the capstone semester to explore, develop and confirm a successful capstone search. They partner with the HOD Capstone team for mentoring, coaching, connection events, and a variety of campus partners to confirm their capstone site. The capstone semester provides a variety of opportunities for students to integrate and apply earlier coursework in a civic/professional, research, international or creative partnership. Students design their capstone to align with their field of interest. They select opportunities that provide valuable applied work experiences, build professional development competencies, and help launch their post-graduation careers. During the HOD capstone semester, students enroll in four courses that accompany their capstone experience: HOD 4950 (P/F - 3 credit hours during summer; 6 hours during fall or spring) *Organizational Partnership*, HOD 4951 (3 hours) *Critical Reflexivity and Systems Thinking*, HOD 4952 (3 hours) *Mapping Future Development*, and HOD 4953 (3 hours) *Analysis and Contribution*. For additional information on the HOD Capstone visit our website HERE.

Honors Program

The HOD Honors Program is designed for highly motivated students who want to pursue intensive research. It offers outstanding undergraduate HOD majors an opportunity to become involved in research teams with professors and graduate students. The program will help students develop skills in empirical research methods, writing, and presentation to provide a firm foundation for advanced graduate or professional training. The HOD Honors Programs requires a serious time commitment to a research project.

Application: Students may apply for the honors program at any time from the second semester of their sophomore year to the summer before their senior year. The application must be approved by the faculty member with whom the student will work, and will outline the nature of the research project, which will ordinarily be an extension of the faculty member’s ongoing research. Students must have completed HOD 1250, HOD 1300, HOD 2100, HOD 2500, and a college statistics course and have an overall GPA of at least 3.6. This minimum GPA must be maintained to graduate with honors.

Applications will be evaluated by the HOD Honors Director, who will decide on admission, taking into consideration the numbers of applicants.

Requirements: Upon admission students will complete two (not necessarily back-to-back) semesters of honors seminar (for six total hours of credit), which satisfy one course in two HOD domains of the student's choosing, plus the writing course requirement. In the course, they will learn advanced research methods. In addition to the honors seminar, the student will work with the faculty sponsor on research for up to ten hours per week. Students must complete a pilot study (first semester) and an empirical (quantitative or qualitative) honors thesis (second semester) that is approved by two faculty readers, and orally present both pilot study and thesis. Although not required, honors projects may be coordinated with the HOD Capstone with permission of the instructor, the student's Honor's advisor, and HOD Capstone Director, and may be taken in the same semester as Capstone. Students are additionally encouraged to attend departmental colloquia and to take at least one graduate course in their area of interest.

Awards of departmental Honors in HOD will depend on successful completion of the course and the thesis. Highest Honors and Best HOD Honors Thesis may be awarded by vote of the Honors Committee.

The Minor in Human and Organizational Development

The HOD minor requires 15 unique hours that are not counted toward any other major or minor. The minor in human and organizational development consists of 18 hours in the following courses:

REQUIRED COURSE. *3 hours.*

HOD 1250. Applied Human Development

CHOOSE TWO ADDITIONAL CORE COURSES. *6 hours.*

HOD 1300. Small Group Behavior

HOD 2100. Understanding Organizations

HOD 2500. Systematic Inquiry

HOD 2700. Public Policy

DOMAIN COURSES: *9 hours.*

Students will choose 3 HOD Domain level courses to count towards the HOD minor.

Human and Organizational Studies

Human and Organizational Studies (HOS) is an alternative major that is available only to Human and Organizational Development (HOD) majors who, due to extenuating circumstances, are unable to complete the required HOD capstone internship after it is too late to complete a new first major. This alternative is initiated and approved by the director of the HOD Capstone Program and the Director of Undergraduate Studies for HOD. In lieu of the HOD Capstone, students complete 30 hours of upper-level approved HOD courses.

Students must complete the Human and Organizational Development liberal education core, the writing requirement, and earn a minimum of 120 hours and a 2.0 cumulative GPA.

Special Education

Major in Special Education

Honors Program

B.S. Degree Requirements

Minors

Minor in Special Education

Minor in Instruction in Special Education

Disability Studies

CHAIR Joseph H. Wehby

ASSOCIATE CHAIR Kimberly Paulsen

DIRECTOR OF GRADUATE STUDIES Robert M. Hodapp

DIRECTOR OF PROFESSIONAL STUDIES Alexandra Da Fonte

DIRECTOR OF UNDERGRADUATE STUDIES Andrea M. Capizzi

The undergraduate program in special education prepares students to work with persons with disabilities and leads to licensure in special education. Students pursue an interdisciplinary major in exceptional learning with emphasis in one of the two specialty areas: high-incidence disabilities (interventionist program K-8 and/or 6-12) or multiple and severe disabilities (comprehensive program). This major can be combined with other majors such as cognitive studies, child development, or majors in the College of Arts and Science. The program is field- oriented and problem centered, with most professional courses requiring direct involvement with individuals with disabilities. Beginning in the freshman year, students observe and work in a variety of educational settings in local schools and in classrooms off campus.

Vanderbilt students seeking teacher licensure must apply through the Office of Teacher Licensure at Vanderbilt and must meet licensure requirements in effect at the time of their graduation, which may be different from licensure requirements in effect at the time they entered the program. Each year, teacher licensure candidates should consult the current Vanderbilt *Undergraduate Catalog,* the *Undergraduate Guide to Teacher Licensure* published by the Vanderbilt Office of Teacher Licensure, and the *Undergraduate Handbook* published by the Office of Administration and Records.

Honors Program

The Honors Program in Special Education offers qualified majors the opportunity to gain experience in conducting research in collaboration with a faculty mentor. This experience culminates in the writing and presentation of a senior project. Students who major in special education are eligible to apply for the Honors Program in the spring of their sophomore year if they have an overall grade point average of at least 3.5. Students who are accepted into the Honors Program, successfully complete the program, and maintain the required grade point averages, will graduate with Honors in Special Education. Specific information concerning admission to and the requirements of the Honors Program in Special Education is available from Professor Andrea Capizzi, director of undergraduate studies for the Department of Special Education. Students should be aware that participation in the Honors Program is quite time-intensive and represents a substantial commitment of effort across at least three semesters. Therefore, potential participants must carefully consider whether they are able to, and want to, devote the required time and energy to this program.

B.S. Degree Requirements

Specializations are available in high-incidence disabilities/interventionist (grades K–8/6–12 interventionist licensure), and severe disabilities (grades K–12 comprehensive licensure). Total hours will vary depending on the area of specialization.

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (https://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-Year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-Year Seminars when open registration begins.

Specializations

The following SPED course is taken as part of the Liberal Education Core, but is also required in each area of specialization.

SPED 1210. Introduction to Exceptionality

The following courses are required in each area of specialization.

SPED 1175. Freshman Seminar

SPED 2310. Managing Academic and Social Behavior

SPED 4950. Student Teaching Seminar

SPED 4954 or 4951. Student Teaching

SEVERE DISABILITIES PROGRAM/COMPREHENSIVE CORE.

SPEDS 2120. Issues in Family Intervention

SPEDS 2450. Augmentative and Alternative Communications SPEDS 2430. Introduction to Language and Communications*

SPEDS 3300. Methods of Instruction for Students with Severe and Multiple Disabilities

SPEDS 3312. Procedures in Transition to Adult Life

SPEDH 3328. Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties: K-8

SPEDH 3338. Teaching Reading to Students with Severe and Persistent Academic and Behavior Difficulties

SPEDS 3330. Characteristics of Students with Severe and Multiple Disabilities

SPEDS 3350. Access to General Education and Teaching Functional Academics

SPEDS 3661. Fieldwork in Special Education: Severe Disabilities

SPEDS 3667. Seminar in Severe Disabilities Fieldwork

SPEDS 3871. Field Work in Special Education: Autism, Intellectual, and Multiple Disabilities

HIGH-INCIDENCE PROGRAM/INTERVENTIONIST CORE.

(Courses are specific to choice of K-8 or 6-12 licensure track.)

SPED 2160. Cultural Diversity in American Education*

SPEDH 3308. Understanding Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3318. Assessment for Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3328. Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties: K-8

SPEDH 3338. Teaching Reading to Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3348. Language and Learning*

SPEDH 3358. Advanced Reading Methods for Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3368. Teaching Middle School Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3378. Teaching High School Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3388. Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties 6-12

SPEDH 3777. School and Classroom Supports for Teaching Students with Academic Behavior Difficulties

SPEDH 3871. Field Work in Special Education for Mild/Moderate Disabilities

*Taken as part of the Liberal Education Core

Minors

Minor in Special Education

The minor in special education provides students with an opportunity to develop familiarity and expertise in working with children who have learning and social behavior problems. The minor requires 15 hours (15 unique to the minor) as detailed below.

Required (3 hours)

SPED 1210. Introduction to Exceptionality (3)

Electives (12 hours)

SPED 2310/3871. Managing Academic and Social Behavior (fieldwork) [3/1]

SPEDH 3308. Understanding Students with Severe and Persistent Academic and Behavior Difficulties [3]

SPEDH 3328/3871. Teaching Math to Students with Academic and Behavior Difficulties (fieldwork) [3/1]

SPEDH 3338/3871. Teaching Reading to Students with Academic and Behavior Difficulties (fieldwork) [3/1]

SPEDH 3348. Language and Learning [3]

SPED 2160. Cultural Diversity in American Education [3]

SPEDS 2120. Family Intervention [3]

SPED 2340. Introduction to Language and Communication [3]

SPED 3330/3871. Characteristics of Severe and Multiple Disabilities (fieldwork) [3/1]

SPED 3312/3871. Procedures in Transition to Adult Life (fieldwork) [3/1]

SPEDS 3350. Access to General Education and Teaching Functional Academics [3]

ASL 2100. American Sign Language I [3]

ASL 2110. American Sign Language II [3]

SPEDV 3305. Medical & Educational Implications of Visual Impairments [3]

SPEDV 3315. Issues & Trends for Students with Visual Impairments [3]

*Most courses are taught in sequence and have prerequisite courses.

Minor in Instruction in Special Education

The minor in Instruction in Special Education is designed for general education teacher education majors (e.g., Early Childhood Education, Elementary Education, Secondary Education) to prepare them for working with students with

disabilities they will encounter in their general education teaching. To be eligible for this minor, students must be enrolled in a teacher education program through the Department of Teaching & Learning. The minor covers academic and behavioral pedagogy and intervention for students with a range of disabilities. The minor requires 19 hours (15 unique to the minor) as detailed below.

SPED 1210: Intro to Exceptionality (3)

SPEDH 3308: Understanding Students with Severe and Persistent Diff. (3)

SPED 2310: Managing Academic and Social Behavior (3)*

SPEDH 3871: Field Work in Mild/Moderate (1)*

SPEDH 3328: Teaching Math to Students with Severe and Persistent Diff. (3)

SPEDH 3358: Advanced Reading Methods for Students with Severe and Persistent Diff. (3)

SPEDS 3358: Access to General Education and Teaching Functional Academics (3)

*Most courses are taught in sequence and have prerequisite courses.

Disability Studies

Disability studies is an alternative major that is available *only* to special education (SPED) majors who discover they are unable to complete required SPED pre-student teaching and/or student teaching capstone after it is too late to complete a different first major. This alternative is initiated by the director of undergraduate studies, with consultation with SPED track directors and the Teacher Preparation Committee. Students completing the disability studies degree do not choose a track.

Honors in Peabody College

Founder’s Medal

The Founder’s Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the Dean after consideration of faculty recommendation and overall academic achievements, as well as grade point averages of the year’s highest ranking summa cum laude graduates.

Latin Honors Designation

Honors, which are noted on diplomas and published in the Commencement Program, are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years’ graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years’ graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years’ graduating seniors.

Dean’s List

The Dean’s List recognizes outstanding academic performance in a semester. Students are named to the Dean’s List when they earn a grade point average of at least 3.500 while carrying 12 or more graded hours, with no temporary or missing grades in any course (credit or non-credit), and no grade of F.

Kappa Delta Pi

Kappa Delta Pi is an education honor society organized in 1911 at the University of Illinois to foster excellence in scholarship, high personal standards, improvement in teacher preparation, distinction in achievement, and contributions to education. Membership is limited to juniors and seniors with a grade point average of 3.500 or better, and graduate students with a grade point average of 3.750 or better. Candidates for membership must have completed at least 9 hours in education or psychology.

Honor Societies for Freshmen

Freshmen who earn grade point averages of 3.500 or better for their first semester are eligible for membership in the Vanderbilt chapters of Phi Eta Sigma and Alpha Lambda Delta.

Awards

ALGERNON SYDNEY SULLIVAN AWARD. Established in 1925 to recognize an undergraduate student that has demonstrated excellence of character and service to humanity.

THE PEABODY ALUMNI AWARD. Awarded by the Peabody Alumni Association to a member of the graduating class who has demonstrated outstanding qualities of scholarship and leadership.

THE WILLIS D. HAWLEY AWARD. Awarded by students of Peabody College to a senior who exemplifies Peabody’s commitment of service to others.

DEAN’S AWARD FOR OUTSTANDING SCHOLARSHIP. Awarded to each *summa cum laude* graduate.

Human Organization and Development

SENIOR THESIS AWARD. Awarded to the graduating senior in the Human and Organizational Development Program who has submitted the most outstanding senior thesis. The winner is selected from a group of five finalists who make an oral presentation of their theses to a panel of five professors.

HUMAN AND ORGANIZATIONAL DEVELOPMENT AWARDS. Established in 1999 and presented to the graduating seniors who exemplify the highest levels of scholarship and leadership in the Human and Organizational Development Program. The awards are given in these areas: Community Service, Outstanding Community Development and Social Policy, Outstanding Health and Human Services, and Outstanding Leadership and Organizational Effectiveness.

HUMAN ORGANIZATION AND DEVELOPMENT CAPSTONE AWARD: Established in 2011 to recognize the human and organizational development senior whose overall capstone performance had the most significant impact within their host internship organization, as determined by nominating faculty, peers, and site supervisors.

Psychology and Human Development

PSYCHOLOGY AND HUMAN DEVELOPMENT UNDERGRADUATE HONORS AWARD. Awarded to the graduating senior who has successfully completed the Undergraduate Honors program in Cognitive Studies, or Child Development, or Child Studies and who has produced the best overall honor project.

EXCELLENCE IN CHILD DEVELOPMENT AWARD. Awarded to the graduating senior majoring in Child Development whose work in the opinion of the faculty of the Department of Psychology and Human Development exemplifies academic excellence.

EXCELLENCE IN CHILD STUDIES AWARD. Presented annually by the Department of Psychology and Human Development to the graduating senior who most clearly exemplifies the goals of the Child Studies Program.

EXCELLENCE IN COGNITIVE STUDIES AWARD. Presented annually by the Department of Psychology and Human Development to the graduating senior who most clearly exemplifies the goals of the Cognitive Studies Department.

Special Education

THE DEPARTMENT OF SPECIAL EDUCATION DISTINGUISHED ACADEMIC ACHIEVEMENT AWARD. Awarded annually to the graduating senior in the Department of Special Education who exemplifies the highest level of academic achievement.

THE DISTINGUISHED SERVICE IN SPECIAL EDUCATION AWARD. Presented annually to the graduating senior in the Department of Special Education who exemplifies the highest commitment to professional service in special education.

DISTINGUISHED TEACHER OF EXCELLENCE IN SPECIAL EDUCATION AWARD. Established in 1999. Awarded annually by the Department of Special Education to the graduating senior who has demonstrated the highest level of excellence in teaching in the area of special education.

DISTINGUIED UNDERGRADUATE RESEARCH PROMISE AWARD IN SPECIAL EDUCATION. Presented annually to the graduating senior in special education, who has demonstrated exemplary academic scholarship and engagement in research.

Teaching and Learning

DOROTHY J. SKEEL AWARD FOR OUTSTANDING PROFESSIONAL PROMISE (ELEMENTARY/EARLY CHILDHOOD EDUCATION). Presented annually to the graduating senior in the Department of Teaching and Learning who has shown exceptional promise as a future teacher at the elementary school or early childhood level.

KEVIN LONGINOTTI AWARD. Awarded annually to a graduating senior in the Department of Teaching and Learning who shows exceptional promise as a future teacher at the secondary school level.

OUTSTANDING PROFESSIONAL PROMISE AWARD IN EARLY CHILDHOOD EDUCATION. Presented annually to a graduating senior who shows exceptional promise as a future teacher at the early childhood level.

UNDERGRADUATE AWARD FOR RESEARCH IN THE PRACTICE OF TEACHING AND LEARNING. Presented to a graduating senior who has, in or out of the classroom, integrated research and practice in the field of teaching and learning.

UNDERGRADUATE SERVICE IN DIVERSE CONTEXTS AWARD. Presented to a graduating senior who has demonstrated exemplary service out of the classroom in diverse settings.

Peabody College Courses

Human and Organizational Development

Community Development and Leadership

Education Policy

Health and Human Services

International Leadership and Policy

Leadership and Organizational Effectiveness

Psychology and Human Development

Special Education

Special Education - Interventionist/High Incidence/Modified

Special Education - Severe/Comprehensive

Special Education - Vision

Teaching and Learning

Education

English Education

Foreign Language Education

Humanities Education

Math Education

Science Education

Social Studies Education

Peabody Honors Scholars

Military Science - Peabody

Naval Science - Peabody

Undergraduate Programs of Study

African American and Diaspora Studies

Program of Concentration in African American and Diaspora Studies

Honors Program

Minor in African American and Diaspora Studies

Areas of Study

Other Electives

CHAIR Tiffany Patterson

DIRECTOR OF UNDERGRADUATE STUDIES Claudine Taaffe

DIRECTOR OF GRADUATE STUDIES Gilman W. Whiting

PROFESSORS Victor Anderson, Houston Baker, Michael Eric Dyson, David Ikard, Hector F. Myers, Alice Randall, Tracy D. Sharpley-Whiting, Gilman W. Whiting

ASSOCIATE PROFESSORS Tiffany R. Patterson

SENIOR LECTURER Claudine Taaffe

WRITER IN RESIDENCE Alice Randall

COURSES OFFERED: AADS

The concentration in African American and Diaspora Studies requires 36 credit hours of course work. Approved courses taken at Fisk University may be counted as electives in the program. The course of study in the African American and Diaspora Studies program is divided into three areas: Area of Study I, Gender and Sexuality; Area of Study II, Literature, Theory, and Visual Culture; and Area of Study III, Social Sciences. Courses that satisfy each area are listed under “Areas of Study and Electives” below.

Program of Concentration in African American and Diaspora Studies

Requirements for the major include at least 36 hours of credit as follows:

1. 3 credit hours from 1010, Introduction to African American and Diaspora Studies.
2. 6 credit hours from Area of Study I, Gender and Sexuality.
3. 6 credit hours from Area of Study II, Literature, Theory, and Visual Culture.
4. 6 credit hours from Area of Study III, Social Sciences.
5. 12 credit hours of electives chosen from Areas of Study I, II, and III, not used to satisfy requirements 2 through 4 above.
6. 3 credit hours in either 4978 (fall) or 4979 (spring), Senior Thesis in African American and Diaspora Studies.

At least 6 credit hours of the concentration must focus on the Americas (outside of the United States) and/or Africa. No more than 9 credit hours of course work may be taken at the 1000 level (excluding 1010).

Honors Program

The only route to honors in the major is writing a 3-credit hour Senior Honors Thesis in AADS 4998 (fall) or 4999 (spring) and passing an oral examination. Admission to the Honors Program requires a student have a grade point average of at least 3.5 in all AADS courses and a cumulative GPA of 3.3. A committee of three faculty members (two of whom must be involved in undergraduate teaching in the African American and Diaspora Studies program) will evaluate the thesis. Students pursuing the Senior Honors Thesis may apply to the program for nominal funding to assist with research projects. The chair of the student’s thesis committee and two readers must attend the oral examination. The oral defense will typically take place in the second semester of the student’s senior year.

Minor in African American and Diaspora Studies

Requirements for completion of the minor include at least 21 credit hours as follows:

1. 3 credit hours in 1010, Introduction to African American and Diaspora Studies.
2. 3 credit hours from Area of Study I, Gender and Sexuality.
3. 3 credit hours from Area of Study II, Literature, Theory, and Visual Culture.
4. 3 credit hours from Area of Study III, Social Sciences.
5. 9 credit hours of electives chosen from Areas of Study I, II, and III, not used to satisfy requirements 2 through 4 above.

At least 6 credit hours of the minor must focus on the Americas (outside of the United States) and/or Africa, and no more than 6 credit hours of the minor can be taken at the 1000 level (excluding 1010).

Areas of Study

Courses with an asterisk in the lists below fulfill the Africa and Americas outside of the United States portion of the major and minor. Approved courses offered at Fisk may count toward elective requirements.

Area of Study I, Gender and Sexuality

AADS: 1204* Diaspora Feminisms; 1404 Comparative Black Male Writers; 2104* Popular Culture and Black Sexual Politics; 2204* Black Women and the Politics of Blackness and Beauty; 2214 History & Myth: Black Women in the United States; 2294* Black Paris–Paris Noir: The African Diaspora and the City of Light; 2514* Insider/Outsider: Lesbian, Gay, Bisexual, Queer, and Trans Black Histories; 2654* Memoirs and Biographies; 3104W* Soul Food as Text in Text: An Examination of African American Foodways; 3204W* African American Children's Literature; 3214* Black Masculinity: Social Imagery and Public Policy; 4104 Environmental History, Sustainability, and African American Foodways; 4264* Black Diaspora Women Writers.

Area of Study II, Literature, Theory, and Visual Culture

AADS: 1016* Race Matters; 1506* Reel to Real: Film Aesthetics and Representation; 1706* Capoeira; 1716* The African City; 1906* Curating Black Lives: Imagination, Art, and Global Social Change; 2106* African Diaspora: A Problem for Thought; 2166 Blacks in Country Music; 2306* Race, Mixed Race, and "Passing"; 2356* African Spirits in Exile: Diaspora Religions in the Americas; 3004 The Morrisonian Era: Toni Morrison and American Social Reality; 3006* James Baldwin: Five Ways of Looking at His Life, Writing and Place; 3106* GOAT: Life, Times, and Politics of Muhammad Ali; 3206 Mystery, Murder, and Mayhem in Black Detective Fiction; 3306 Black Detroit; 3556 The Political Economy of Racism; 4126* The Black Classics; 4256* Haiti: Freedom, Democracy; 4506* Slavery and Public Memory.

Area of Study III, Social Sciences

AADS: 1108* Making of the African Diaspora; 1408* Blacks in Latin America and the Caribbean; 1808* On Whiteness: Whiteness, Race, and Identity; 2168* Black Migrations in the African Diaspora; 2178* Global Africa; 3178* Colonialism and After; 3208W* Blacks in the Military; 3258 Black Issues in Education; 3278* Black Europe; 3458* Atlantic African Slave Trade; 4198* Global Anti-Blackness and Black Power; 4228W Black Girlhood: History, Performance, and Counter-Narratives; 4270 Research Methods; 4588* The Black Studies Movement.

Other Electives

Any course from the above three areas may serve as an elective if it is not already being used to satisfy an Area of Study requirement. Please consult the director of undergraduate studies for periodic updates about electives including courses that can be taken at Fisk as electives for AADS.

AFRICAN AMERICAN AND DIASPORA STUDIES: 1111* First Year Writing Seminar.

ANTHROPOLOGY: 2105* Race in the Americas; 2106* Culture and Power in Latin America. 2375 Making Racism Visible: Media and Civil Rights from MLK to Black Lives Matter.

ASIAN AMERICAN STUDIES: 3155* Blackness and the Asian Century. ECONOMICS: 2150 Economic History of the United States.

ENGLISH: 3654/3654W African American Literature; 3658 Latino-American Literature; 3674* Caribbean Literature; 3742* Feminist Theory.

FRENCH: 3232* Introduction to Francophone Literature; 4023* The African Novel.

GENDER AND SEXUALITY STUDIES: 1150/1150W Sex and Gender in Everyday Life; 2240 Introduction to Women's Health; 3250/3250W Contemporary Women's Movements.

HISTORY: 1269* Introduction to African Studies; 1270* Sub-Saharan Africa 1400–1800; 1270W History of Sub-Saharan Africa; 1280* Africa since 1800; 1281W* Making of African Cities; 1383* Slave Resistance in the Americas; 1395 The Underground Railroad; 1410 U.S. 1877–1945: Reconstruction through World War II; 1440 African American History since 1877; 2137* The Mandelas: Biography, Struggle, and Legacies; 2450* Reform, Crisis, and Independence in Latin America, 1700–1820; 2139* Technology, Nature, Power in Africa; 2490* Brazilian Civilization; 2570* Caribbean History 1492–1983; 2620 The Old South; 2630 The New South; 2684* The History of Black Power; 2686 Race, Rights, American Dream; 2689 "Women of Color": History, Theorizing and Organizing in the United States; 2690 The Civil Rights Movement; 2691 Barack Obama: Man and President; 2692W* Biographies of Struggle; 2749 American Intellectual History to 1865; 2752 African American Intellectual History Since 1776; 3040 Health and African American Experience; 3200* Poverty, Economy, Society in Sub-Saharan Africa.

HISTORY OF ART AND ARCHITECTURE: 1750W African American Arts; 4960* Advanced Seminar in History of Art.
JEWISH STUDIES: 2240W Black-Jewish Relations in Post-War American Literature and Culture.

MEDICINE, HEALTH AND SOCIETY: 1940 Racial and Ethnic Health Disparities; 3140 Afrofuturism and Cultural Criticisms of Medicine.

MUSIC: 1100* World Music; 1105* African Music; 1600 American Popular Music; 1620 Survey of Jazz; 1630 The Blues; 2150* Music, Identity, and Diversity.

PHILOSOPHY: 2665 Race and Racism.

POLITICAL SCIENCE: 2237* African Politics.

RELIGIOUS STUDIES: 1100 Introduction to African American Religious Traditions; 3119 Martin Luther King, Jr., and the Social Roles of Religion; 3142 Slave Thought and Culture in the American South.

SOCIOLOGY: 3207 Popular Culture Dynamics; 3701 Racial Domination, Racial Progress; 3304 Race, Gender, and Health; 3702 Racial and Ethnic Minorities in the United States; 3704 Race, Gender, and Sport; 3624 Prison Life; 3711* Women, Gender, and Globalization; 3722* Gender in Society; 3723* Gender, Sexuality, and the Body.

SPANISH: 3835* Latino Immigration Experience*; 4750* Afro-Hispanic Literature.

American Studies

Program of Concentration in American Studies

Minor in American Studies

Honors Program

General Advice for Majors and Minors

Approved List of Courses

DIRECTOR Paul Stob (Communication Studies)

ASSOCIATE DIRECTOR Gabriel A. Torres Colón (Anthropology)

PROFESSORS C. André Christie-Mizell (Sociology), Colin Dayan (English), Ted Fischer (Anthropology), Sarah Igo (History), Dana Nelson (English), Emilie Townes (Divinity)

ASSOCIATE PROFESSORS Teresa A. Goddu (English), Leah Lowe (Theatre)

ASSISTANT PROFESSORS Aimi Hamraie (Medicine, Health, and Society), Gabriel A. Torres Colón (Anthropology)

SENIOR LECTURERS Alexander I. Jacobs, Susan Kevra (French), Mario Rewers, Danyelle Valentine

Affiliated Faculty

PROFESSORS Dan Cornfield (Sociology), Marshall C. Eakin (History), Derek Griffith (Medicine, Health, and Society), Joni Hersch (Law), Larry Isaac (Sociology), Jonathan Metzl (Medicine, Health, and Society), Kelly Oliver (Philosophy), Lucius Outlaw Jr. (Philosophy), Laurel C. Schneider (Religious Studies), Dan Sharfstein (Law), Hortense Spillers (English), Dan Usner (History)

ASSOCIATE PROFESSORS Vanessa Beasley (Communication Studies), Claire Sisco King (Communication Studies), Richard Lloyd (Sociology), Ken MacLeish (Medicine, Health, and Society, Paul Miller (French and Italian), Ann Neely (Teaching and Learning)

ASSISTANT PROFESSORS Ashley Carse (Human and Organizational Development), Sara Safransky (Human and Organizational Development)

SENIOR LECTURER Chalene Helmuth (Latin American Studies)

OTHER AFFILIATED FACULTY Joe Bandy (Assistant Director of the Center for Teaching)

COURSES OFFERED: AMER

The Program in American Studies is an interdisciplinary program fostering the in-depth study of American cultures from a variety of perspectives. Students choose their path through the major or minor based on their own intellectual commitments. Through course offerings, colloquia, and research opportunities, students examine questions of power and conflict, experience and identity, and tradition and social change—both within and beyond the territorial borders of the United States and the Americas. The program allows study at the local, subnational, national, and global levels, from in-depth investigation of Nashville communities to research on transnational nongovernmental organizations. Matters of class, race, region, gender, ethnicity, sexuality, religion, law, migration, environment, technology, politics, and the arts are central to the curriculum. Students participate in a robust set of extracurricular events, including Road Trips, City Walks, and discussion of current events through the Beyond the Headlines series. The program also encourages and provides opportunities for on- and off-campus research, internships, study abroad, and individual and group projects under the guidance of participating faculty in the humanities, arts, and social sciences.

Program of Concentration in American Studies

The interdisciplinary major in American studies consists of 30 credit hours of course work, distributed as follows:

1. Core Requirements: 9 credit hours
2. International Requirement: 3 credit hours
3. Interdisciplinary Requirement: 6 credit hours
4. Electives: 12 credit hours

Note: No course may be counted twice in calculating the 30 credit hours. No more than 6 credit hours at the 1000 level can count toward the major. Students seeking a second major may count a maximum of 6 credit hours of course work toward meeting requirements in both majors.

1. *Core Requirements* (9 credit hours)

Core Courses:

AMER 1002, Introduction to American Studies (3 credit hours)

AMER 4000, Research Methods Workshop (3 credit hours)

AMER 4960, Senior Project (3 credit hours)

2. *International Requirement* (3 credit hours)

One of the following:

a. AMER 3200, Global Perspectives on the U.S. (3 credit hours)
b. With approval of the director of undergraduate studies, a 3 credit-hour course that explicitly addresses a global perspective on the United States

Examples of approved courses include:

ANTHROPOLOGY: 3161, Colonial Encounters in the Americas.

ECONOMICS: 4520, Seminar on Globalization.

HISTORY: 2535, Latin America and the United States; 2700, The U.S. and the World; 2710, The U.S. as a World Power.

INTERDISCIPLINARY STUDIES: 3831, Global Citizenship and Service; 3832, Global Community Service; 3833, Seminar in Global Citizenship and Service.

JEWISH STUDIES: 2450, The Jewish Diaspora.

POLITICAL SCIENCE: 2225, International Political Economy; 2236, The Politics of Global Inequality.

3. *Interdisciplinary Requirement* (6 credit hours)

6 credit hours from at least two different interdisciplinary programs: African American and Diaspora Studies; American Studies; Asian Studies; Cinema and Media Arts; Earth and Environmental Sciences; Gender and Sexuality Studies; Jewish Studies; Latin American Studies; Latino and Latina Studies; Medicine, Health, and Society.

Note: See below for a list of approved courses in interdisciplinary programs.

4. *Electives* (12 credit hours)

Four courses pre-approved to form a study of concentration. See below for a list of approved courses.

Minor in American Studies

The interdisciplinary minor in American studies consists of 15 credit hours of course work, distributed as follows:

1. Core Requirements: 6 credit hours
2. International Requirement: 3 credit hours
3. Electives: 6 credit hours

1. *Core Requirements* (6 credit hours)

Core Courses:

AMER 1002, Introduction to American Studies (3 credit hours)

AMER 4000, Research Methods Workshop (3 credit hours)

2. *International Requirement* (3 credit hours)

One of the following:

a. AMER 3200, Global Perspectives on the U.S. (3 credit hours)
b. A pre-approved course that explicitly addresses a global perspective on the U.S.; see part 2(b) of the major for sample courses.

3. *Electives* (6 credit hours)

Two courses pre-approved to form a plan of concentration. See below for a list of approved courses.

Honors Program

The Honors Program in American Studies offers superior students a more intensive concentration within their major field. The program requires:

1. Completion of the requirements of the major.
2. A 3.3 cumulative grade point average.
3. A 3.5 cumulative grade point average in American Studies.
4. 6 credit hours in the fall and spring semesters of the senior year in AMER 4998/4999 devoted to a major research project leading to an honors thesis. 4999 counts as the Senior Project (4960), and 4998 counts as elective credit for the requirements of the major.
5. An Honors thesis to be completed by the spring of the senior year.
6. Successful completion of an oral examination on the topic of the thesis.

Exceptional achievement on the thesis will earn highest honors. Applications are accepted in March of the junior year. Additional information is available from the director of the American Studies program.

General Advice for Majors and Minors

We encourage students to enter the major through a number of avenues: a First-Year Writing Seminar; our introductory course to the major, AMER 1002/1002W; or an introductory course in a particular discipline or program. Up to 6 credit hours of introductory courses can count toward the major.

Once having declared a major or minor, students should work closely with their adviser to develop a coherent plan of study. We encourage students to concentrate on a theme or topic of special interest, either by choosing courses with a topical coherence each semester or by choosing a single thematic focus or scholarly problem. We also highly encourage our majors to seek opportunities for study abroad or internship possibilities. Students may take the American Studies Workshop at any time during their coursework in order to facilitate their progress towards the capstone Senior Project, taken during the spring of senior year. Distributional requirements and electives should be

selected in close conjunction with the adviser.

We also encourage our students to participate in American Studies programming that occurs outside the classroom, including our Road Trips, City Walks, and Beyond the Headlines series.

Please consult the American Studies program website for detailed descriptions of courses. For all 1111, special topic, and independent study courses, the course must be on an American topic, as approved by the director of the American Studies program. *Note:* 1111 in all departments receives credit when an American topic is offered.

Approved List of Courses

INTERDISCIPLINARY PROGRAMS

AFRICAN AMERICAN AND DIASPORA STUDIES: 1010, Introduction to African American and Diaspora Studies; 1016, Race Matters; 3104W, Soul Food as Text in Text: An Examination of African American Foodways; 3206, Mystery, Murder, and Mayhem in Black Detective Fiction; 3214, Black Masculinity: Social Imagery and Public Policy; 3258, Black Issues in Education.

AMERICAN STUDIES: 1111, First-Year Writing Seminar; 2100, Sport, Culture, and Society; 2500, American Cultures; 2700, Religion, Politics, and American Culture; 3851, Independent Readings and Research; 3852, Independent Readings and Research; 3881, Internship Readings and Research; 3890, Topics in American Studies; 4100, Undergraduate Seminar in American Studies; 4998, Senior Honors Research; 4999, Senior Honors Thesis.

CINEMA AND MEDIA ARTS: 1600, Introduction to Film and Media Studies.

GENDER AND SEXUALITY STUDIES: 2243, Sociologies of Men and Masculinity; 2248, Humor and Cultural Critique in Fannie Flagg’s Novels; 2249, Women and Humor in the Age of Television; 2259/2259W, Reading and Writing Lives; 2268, Gender, Race, Justice, and the Environment; 3246W, Women’s Rights, Women’s Wrongs; 3250/3250W, Contemporary Women’s Movements; 3271, Feminist Legal Theory; 3891, Special Topics: Topics in Gender, Culture, and Representation; 3893, Selected Topics (when an American topic is offered).

JEWISH STUDIES: 2280/2280W, Jewish Humor; 2400, American Jewish Life; 2420W, American Jewish Music; 2560, Social Movements in Modern Jewish Life; 3830, Contemporary Jewish Issues.

LATIN AMERICAN STUDIES: 2601, Latin America, Latinos, and the United States.

MEDICINE, HEALTH, AND SOCIETY: 1930, Fundamental Issues in Medicine, Health, and Society; 3020, U.S. Public Health Ethics and Policy; 3150, Death and Dying in America; 3890, Special Topics.

ELECTIVES

ANTHROPOLOGY: 2105, Race in the Americas.

ART: 1099, Maymester Contemporary Art Blitz (when U.S. city/art).

CLASSICAL STUDIES: 3000, Classical Tradition in America.

COMMUNICATION STUDIES: 2800, Rhetoric and Civic Life; 2950, Rhetoric of Mass Media; 3000, Rhetoric of the American Experience, 1640– 1865; 3001, Rhetoric of the American Experience, 1865---1945; 3002, Rhetoric of the American Experience, 1945–Present; 3100, Rhetoric of Social Movements; 3110, Women, Rhetoric, and Social Change; 3700, Politics and Mass Media; 3720, Communicating Gender; 3890, Selected Topics in Communication Studies; 4940–4941, Seminars in Selected Topics.

ECONOMICS: 2100, Labor Economics; 2150, Economic History of the United States; 2890, Special Topics; 3100, Wages, Employment, and Labor Markets; 3150, Topics in the Economic History of the U.S.

ENGLISH: 2316, 2316W, Representative American Writers; 2320, Southern Literature; 3620, Nineteenth-Century American Literature; 3622, Nineteenth-Century American Women Writers; 3624W, Literature of the American Civil War; 3640, Modern British and American Poetry: Yeats to Auden; 3642, Film and Modernism; 3644, Jewish American Literature; 3644–3645, Twentieth-Century American Novel; 3646, Poetry since World War II; 3650, 3650W, Ethnic American Literature; 3654, 3654W, African American Literature; 3658, Latino-American Literature; 3662, 3662W, Asian American Literature; 3674, Caribbean Literature; 3680–3681, Twentieth-Century Drama; 3692, Desire in America: Literature, Cinema, and History; 3694, America on Film: Art and Ideology; 3695, America on Film: Performance and Culture; 3710–3711, Literature and Intellectual History (when an American topic is offered); 3746, Workshop in English and History; 3890, 3890W, Movements in Literature (when an American topic is offered); 3892, 3892W, Problems in Literature (when an American topic is offered); 3894, 3894W, Major Figures in Literature; 3896, Special Topics in Investigative Writing in America; 3898, 3898W, Special Topics in English and American Literature (when an American topic is offered); 3899, Special Topics in Film.

HISTORY: 1390, America to 1776: Discovery to Revolution; 1400, U.S. 1776–1877: Revolution to Civil War and Reconstruction; 1410, U.S. 1877– 1945: Reconstruction through World War II; 1420, U.S. Post-1945: Cold War to the Present; 1427W, America in the Seventies; 1430W, American Indians and the Environment; 1440, African American History since 1877; 1660, American Enterprise; 1690, Sea Power in History; 1730, The U.S. and the Cold War; 1740, The U.S. and the Vietnam War; 2535, Latin America and the United States; 2580, American Indian History before 1850; 2590, American Indian History since 1850; 2610, The Founding Generation; 2620, The Old South; 2630, The New South; 2640, Appalachia; 2662, American Slavery; 2690, The Civil Rights Movement; 2691, Barack Obama: Man and President; 2700, The U.S. and the World; 2710, The U.S. as a World Power; 2721, Globalizing American History, 1877–1929; 2730, American Masculinities; 2749, American Intellectual History to 1865; 2750, American Intellectual History since 1865; 2800, Modern Medicine; 2810, Women, Health, and Sexuality; 2840, Sexuality and Gender in the Western Tradition since 1700; 3010, Pornography and Prostitution in History; 3040, Health and the African American Experience; 3140, History of New Orleans; 3170, The Federalist Papers; 3746, Workshop in English and History; 3890, Selected Topics in History (when an American topic is offered); 4960, Majors Seminar (when an American topic is offered).

HISTORY OF ART AND ARCHITECTURE: 2660, American Art to 1865; 2720, Modern Architecture; 2760, Early American Modernism, 1865– 1945; 2765, Art since 1945; 3735, History of Photography; 4960, Advanced Seminar (when an American topic is offered).

MUSIC LITERATURE AND HISTORY: 1600, American Popular Music; 1610, Musical Theatre in America: A Cultural History; 1620, Survey of Jazz; 1630, The Blues; 1640, Country Music; 1650, History of Rock Music; 2150, Music, Identity, and Diversity; 2320, Exploring the Film Soundtrack; 2600, American Music; 2610, Music of the South.

OTHER MUSIC COURSES: 1300, Music and the Fall of Segregation.

PHILOSOPHY: 2104, Nineteenth-Century Philosophy; 2110, Contemporary Philosophy; 3008, American Philosophy; 3603, Philosophy of Education; 3623, Modern Philosophies of Law.

POLITICAL SCIENCE: 1100, Introduction to American Government and Politics; 1150, U.S. Elections; 2222, American Foreign Policy; 2240, Political Parties; 2243, Political Campaigns and the Electoral Process; 2245, The American Presidency; 2255, Public Policy Problems; 2262, The Judicial Process; 2263, Religion and Politics; 2265, Constitutional Law: Powers and Structures of Government; 2266, Constitutional Law: Civil Liberties and Rights; 3241, American Public Opinion and Voting Behavior; 3244, The Legislative Process; 3247, American Political Culture; 3249, American Political Thought; 3250, Group Conflict and Cooperation in U.S. Politics; 3260, Introduction to American Law; 3272W, The War in Iraq, 2003–2011; 3891, Topics in Contemporary Politics; 3893, Selected Topics of American Government; 3897, Selected Topics (when an American topic is offered).

RELIGIOUS STUDIES: 1100, Introduction to African American Religious Traditions; 1190W, Introduction to Southern Religion and Culture; 3119, Martin Luther King, Jr., and the Social Roles of Religion; 3142, Slave Thought and Culture in the American South; 3304W, Evangelical Protestantism and the Culture Wars.

SOCIOLOGY: 3201, Cultural Consumption and Audiences; 3204, Tourism, Culture, and Place; 3207, Popular Culture Dynamics; 3221, The Family; 3222, Sociology of Religion; 3223, Schools and Society: The Sociology of Education; 3233, Contemporary American Society; 3301, Society and Medicine; 3322, Immigration in America; 3601, Self, Society, and Social Change; 3602, Change and Social Movements in the Sixties; 3603, Women and Social Activism; 3604, American Social Movements; 3611, Women and the Law; 3616, Women and Public Policy in America; 3621, Criminology; 3622, Delinquency and Juvenile Justice; 3624, Prison Life; 3702, Racial and Ethnic Minorities in the United States; 3722, Gender in Society; 3724, Gender Identities, Interactions, and Relationships; 4961, Seminars in Selected Topics (when an American topic is offered).

SPANISH AND PORTUGUESE: 3375, Film and Culture in Latin America; 3835, Latino Immigration Experience; 4750, Afro-Hispanic Literature.

THEATRE: 1811, Marshals, Mobsters, Monsters, Magnums, and Musicals: American Movie Genres; 2204, Histories of Theatre and Drama III: The

U.S. Stage.

Anthropology

Program of Concentration in Anthropology

Honors Program

Minor in Anthropology

CHAIR Steven A. Wernke

DIRECTOR OF UNDERGRADUATE STUDIES Jacob J. Sauer

DIRECTOR OF GRADUATE STUDIES Jada Benn-Torres

PROFESSORS EMERITI Tom D. Dillehay, William R. Fowler, Lesley Gill, Thomas A. Gregor, Ronald Spores

PROFESSORS Arthur A. Demarest, Edward F. Fischer, Tiffiny A. Tung

ASSOCIATE PROFESSORS Jada Benn-Torres, Carwil Bjork-James, Beth A. Conklin, Markus Eberl, T. S. Harvey, Norbert Ross, Steven A. Wernke

ASSISTANT PROFESSORS Sophie Bjork James, Ari A. Caramanica, Rebeca Gamez-Djokic, Monica H. Keith, Kimberly D. McKinson, Gabriel Torres Colón, Michelle E. Young

PRINCIPAL SENIOR LECTURER Mareike Sattler

SENIOR LECTURER Jacob J. Sauer

LECTURER Tiffany B. Saul

COURSES OFFERED: ANTH, KICH

Anthropology is the study of human diversity in all times and places. It brings together perspectives from the sciences and humanities to illuminate different aspects of the human past, the human body, and contemporary social life. Global perspectives, fieldwork and experiential learning, and concerns with ethics, justice, and social well-being are hallmarks of anthropology.

Vanderbilt's program has a strong research focus on Latin America and historically marginalized groups, especially indigenous people and descendants of the African diaspora.

Students majoring in anthropology take courses in several subfields, each of which looks at humanity from a different perspective. Cultural anthropology examines the relationships, beliefs, values, and political-economic practices that shape individual behavior, community life, and power in modern societies. Archaeology studies societies through their material remains, enabling long-term perspectives on the human past as well as connections to present-day descendant communities. Linguistics explores relations between language and culture. Biological anthropology examines topics such as community health in the past and present, forensic science, genetics, evolution, human biology, and bioethics. Courses cluster around themes of cross-cultural health, biology, food, and medical systems; inequality, power, and social-political relations; material culture, human-environment relations, and spatial analysis; religion and politics; and worldviews, language, and cognition. Many courses are interdisciplinary in nature, with connections to programs such as Biology; Earth and Environmental Science; Medicine, Health, and Society; Human and Organizational Development; History; Classics and Mediterranean Studies; Sociology; Jewish Studies; African American and Diaspora Studies; Latin American Studies; Asian Studies, and others, and attracts students from all four Undergraduate colleges. Unless indicated otherwise in the course description, anthropology courses have no prerequisites and are open to all majors and non-majors.

Knowledge of the diversity of human histories and lifeways is vital to imagining alternative paths to a better society. Anthropology develops this knowledge through experiential learning that challenges students to go beyond the familiar, to see, understand, create, and interact in new ways. This preparation is useful in all professional careers that involve understanding human behavior, working with people from different backgrounds, analyzing complex information, and thinking holistically about the conditions that shape people's lives.

Program of Concentration in Anthropology

The major in anthropology requires completion of at least 30 credit hours of course work, as follows:

1. *6 credit hours.* Two 1000-level surveys selected from the subfields of anthropology: 1101 (Cultural Anthropology), 1201 (Archaeology), 1301 (Biological Anthropology), 1601 (Linguistic Anthropology). A course in a third subfield is strongly recommended (in consultation with the adviser).
2. *3 credit hours*. A seminar on anthropological theory (2101 or 2102). The seminar may not be used to count toward theme credit below.
3. *3 credit hours.* A course on anthropological methods; this class may not count towards the theme requirement. Courses that satisfy the methods requirement include 2211, 2601, 2602, 2602W, 2603, 3120, 3125, 3142, 3150, 3260, 3260W, 3261, 3262, 3347, 3372, 3860W, 3865, 3866, 3867, 3868, 4152, 4160, 4373. Other anthropology courses, including those at the 5000- and 6000-level, can count in consultation with the adviser and instructor.
4. *12 credit hours.* Students take four upper-level courses from a predesigned theme or from a theme that they design in consultation with their adviser:
    A. Environment, landscape, and place (2108, 2109, 2113, 2114, 2117W, 2150, 2160, 2160W, 2170W, 2214, 2220, 2220W, 2221, 2222, 2223, 2224, 2225, 2226W, 2227, 2228W, 2230, 2231, 2242, 2242W, 2275, 2370, 2380W, 2381W, 3121, 3122, 31363138, 3200, 3240, 3250, 4154, 4155)

B. Healing, medicine, and culture (2113/W, 2227, 2342, 2370, 2371, 3121, 3125, 3132, 3138, 3141, 3143, 3144, 3145, 3343, 3344, 3345, 3346, 3371, 3372, 3401W, 4201W, 4345, 4373)
C. Social politics and power (2105, 2106, 2108, 2109, 2110, 2116W, 2117W, 2120, 2130, 2150, 2170W, 2220, 2220W, 2223, 2225, 2226W, 2231, 2242, 2275, 2342, 2370, 2375, 2380W, 2381W, 2385W, 2400, 2602W, 2800, 3050, 3121, 3122, 3125, 3130, 3132, 3133, 3134, 3135, 3136, 3138, 3140, 3144, 3145, 3161, 3162, 3202, 3241, 3232, 3243, 3250, 3343, 3345, 4152, 4153)
D. Identity, ethnicity, gender (2105, 2106, 2108, 2110, 2113W, 2114, 2117W, 2120, 2130, 2160/W, 2170W, 2220/W, 2227, 2229W, 2230, 2231, 2242/W, 2275, 2370, 2375, 2380W, 2381W, 2385W, 2400, 2602W, 3050, 3121, 3122, 3132, 3134, 3135, 3144, 3145, 3202, 3243/W, 3241, 3250, 3343, 3346, 3401W, 4152, 4155, 4156, 4201W, 4345, 4373)
E. Biocultural foundations in health, genetics, forensics, and ethics (2105, 2110, 2117W, 2170W, 2220/W, 2227, 2228W, 2275/W, 2342, 2370, 2371, 2375, 2380W, 2400, 3121, 3122, 3134, 3138, 3141, 3143, 3144, 3145, 3162, 3262, 3344, 3345, 3346, 3347, 3371, 3372, 3401W, 4156, 4201W, 4345, 4373)
F. Language, cognition, and culture (2160/W, 2170W, 2380W, 2385W, 2601, 2602, 2602W, 2603, 3140, 3145, 3150/W, 3243/W, 3620, 3622/W, 4155, 4201W; KICH 1101, 1102, 2201, 2202)

5. *3 credit hours*. One capstone experience in engaged anthropology. In consultation with their adviser, students may fulfill this requirement by taking a formal course (3125) or by completing an independent study, internship, or honors thesis, or by doing a special capstone project in any 2000-level or higher anthropology course with the approval of their adviser and the course instructor.
6. Minimum 3 credit hours of electives chosen from ANTH courses not already used to satisfy the requirements listed above, to total 30 credit hours toward the major.
7. With the approval of the student's major adviser, a maximum of 3 credit hours for a course taken in another department or program may be counted toward the major requirement. A variety of courses is possible, including but not limited to those listed below. In each case, the course must be relevant to the student's program and the student must receive the approval of the director of undergraduate studies: African American and Diaspora Studies 2178, 3178; Biological Sciences 2205; Classics 1020, 1150, 2180, 2200, 2210, 2250, 2260, 2270, 2300, 3030, 3100, 3110, 3310, 3710, 3730; History 1270, 2490; History of Art and Architecture 1330, 2210; Latin American Studies 2301, 2601; Mathematics 1010, 1011; Medicine, Health, and Society 1930, 2130, 2240, 2250, 2420, 2430, 3010, 3020, 3110, 3140, 3150, 3210, 3212, 3220, 3250; Music Literature 1100, 1105, 2110; Religious Studies 4554; Sociology 3001, 3221, 3232, 3311, 3313, 3314; Spanish 3360.

Honors Program

The Honors Program in Anthropology allows exceptional undergraduate students to undertake independent research on a topic in consultation and mentorship with faculty members. This program is open to all Anthropology majors with junior standing who have a 3.3 GPA in all general University courses and Anthropology courses who are approved for acceptance into the Honors Program by Department faculty. Completion of the program requires:

1. 3-6 credit hours in ANTH 4998 (Honors Research, select the section under your adviser's name), evaluated by the Honors Thesis Adviser, generally in the fall semester of the student's senior year. If the student plans to graduate in December, they may take 4998 in the spring semester.
2. 3-6 credit hours in ANTH 4999 (Honors Thesis), evaluated by Honors Thesis Adviser, generally in the spring semester of the student's senior year. If the student plans to graduate in December, they may take 4999 in the fall.
3. Submission of a written thesis, evaluated by the student's Honors Committee.
4. Oral presentation of the thesis (15-20 mins.), which includes invited guests and members of the department, evaluated by the student's Honors Committee.
5. Oral examination (defense) of the thesis, administered by the student's Honors Committee, usually after the public presentation.

The honors thesis hours are expected to be in excess of the 30 hours required for the Major in Anthropology and are typically done in the student's senior year. This timeline may be modified after consultation with the thesis adviser, Departmental Director of the Honors Program, and Faculty approval.

Students meeting these requirements receive Honors or High Honors in Anthropology, depending on the qualify of their thesis, grades in anthropology courses, and examination results. Successful Departmental Honors students will receive a Vanderbilt diploma that records Honors or High Honors in Anthropology.

Minor in Anthropology

The minor in anthropology requires 18 credit hours of course work, as follows:

1. *3 credit hours*. One introductory course from one of the four subfields in Anthropology: 1101 (cultural anthropology), 1301 (biological anthropology), 1201 (archaeology), 1601 (linguistics).
2. *3 credit hours*. One methods or one theory course listed in the major; see above.
3. *12 credit hours*. Four courses from a theme in the major designed in consultation with the adviser; see above.

Arabic

SENIOR LECTURERS M. Issam Eido, Bushra Hamad

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language. Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

COURSES OFFERED: ARA

Art

Program of Concentration in Art

Requirements for the Program of Concentration in Art

Honors Program in Art

Minor in Art

CHAIR Mark Hosford

DIRECTOR OF UNDERGRADUATE STUDIES Angus Galloway

PROFESSORS EMERITI Michael Aurbach, Marilyn L. Murphy

PROFESSORS Maria Magdalena Campos-Pons, Mel Ziegler

ASSOCIATE PROFESSORS Mark Hosford, Vesna Pavlović

ASSISTANT PROFESSOR Raheleh Filsoofi

ASSOCIATE PROFESSOR OF THE PRACTICE Jana Harper

ASSOCIATE PROFESSOR OF THE PRACTICE Angus Galloway

PRINCIPAL SENIOR LECTURER, RETIRED Susan DeMay

LECTURERS Jose Luis Benavides, Alex Blau, Patrick DeGuira, Kimea Ferdowski Kline, Vadis Turner, John Warren, Tom Williams

Affiliated Faculty

ASSOCIATE PROFESSOR Jonathan Rattner

COURSES OFFERED: ARTS

Courses in art are offered in a variety of media, which provide wide-ranging methods and perspectives. Our courses emphasize creative and critical approaches to learning. The department of art offers a rigorous, socially minded, and research-driven curriculum. Students engage in an immersive laboratory of fearless experimentation and challenge the rapidly expanding role of art in our society. Through trans-disciplinary thinking and experimental methodologies, students utilize a range of artistic disciplines in a state-of-the-art facility. Equal emphasis is placed on both individual and collective exploration, where students are encouraged to develop relationships across the university and broader communities.

Many students will use the program in art as a foundation for careers in which creativity and visual studies are especially valued, as the basis for advanced training in professional schools (such as art, architecture, museum studies), and for employment in galleries, museums, commercial art, or design-related fields. An important goal of the department is to help students become readers of the rich visual environment in our culture throughout their lives, as well as to encourage creative approaches to learning in all disciplines.

The Department of Art offers several opportunities for extracurricular activities in the arts including a student-run art gallery, and Space 204 arts laboratory which hosts exhibitions and workshops throughout the year. Studio VU lecture series brings some of the most important artists working today to campus for lectures and one-on-one studio visits with students.

Since 1984 the Department of Art has supervised the Margaret Stonewall Wooldridge Hamblet Award given to an eligible senior art major. This prestigious award provides the means for travel and independent art activity for one year, culminating in a one-person exhibition at Vanderbilt. Our immersive program includes both junior and senior major trips to New York and other important art destinations.

Many other prizes are awarded in our department. The Allan P. Deloach Memorial Prize in Photography was established in 2000 in memory of Allan Deloach (B.A. 1963) by two of his colleagues at IBM. This cash award is open to any student who has taken a studio class in any discipline at Vanderbilt. Midsouth Ceramics awards are given to the top three ceramic projects in the annual open house, and the Plaza Artists Materials awards are given to four students each year. All competitions are judged by outside professional artists.

Program of Concentration in Art

The art major requires 30 credit hours and presents students the opportunity to explore their ideas conceptually, as well as to learn the technical skills involved in the creation of art. The program offers a wide range of classes and media. Our students are offered a strong grounding in traditional processes such as drawing, painting, ceramics, and sculpture, as well as the opportunity to explore contemporary processes involving video, performance, digital photographic, and new media, installation, and social interactive art practice. Our diverse faculty utilizes a wide range of teaching styles and aesthetic philosophies. We consider how ideas have been developed through the centuries as well as how specific techniques have been used to enrich the expression of an idea. In addition to modern art history offerings, art majors are encouraged to take courses in pre-Renaissance, non-Western art history, philosophy of aesthetics, and film. The Contemporary Art Maymester offers an opportunity to study contemporary art in a concentrated manner.

Requirements for the Program of Concentration in Art

Foundation Requirement (3 credit hours)

- ARTS 1101, 1102, or 1104

Studio Requirements (15 credit hours)

- Any **ARTS** courses with the exception of ARTS 1099 or ARTS 1800.

Within the 15 credit hours, students must take at least one 2000-level or higher ARTS course.

Related Requirement (6 credit hours), which must include one course (3 credit hours) of each of the following:

- ARTS 1800, Sources of Contemporary Art
- Any HART course or one course from the following: ARTS 1099; CMA 1600, 2300; PHIL 3014

The department highly recommends taking ARTS 1800, Sources of Contemporary Art course prior to the senior year.

Directed Study (6 credit hours)

- ARTS 3970, Directed Study: Senior Show and Contemporary Practices
- ARTS 3971, Independent Research: Senior Show

Majors are required to complete the Independent Research course, ARTS 3971, their senior year. This course is designed specifically to help prepare majors for their Senior Show and is typically taken in the second semester of the senior year. No other independent research/study course may be counted toward the major.

Honors Program in Art

The Honors Program in the Department of Art offers an opportunity to art majors to pursue their interest in art on a higher level. To be admitted to the Honors Program in Art, students must have:

- At least a 30 cumulative GPA.
- At least a 5 GPA in courses that count toward the major in art.
- Completed the sophomore year.

Students interested in pursuing the honors program should contact the director of undergraduate studies. Application materials must be submitted to the director of undergraduate studies in the applicant's junior year; applications may be submitted electronically. Applications must include ten digital images of recent work with written explanations for each image. Applicants will be notified in writing of the department's decision.

Each honors student shall have a committee consisting of one faculty member appointed by the department chair, the student's selected honors adviser, and the director of undergraduate studies.

Requirements for graduation with honors in art:

1. Successful completion of the requirements for the major in art,
2. During the senior year the student is required to register for ARTS 4998 (3 credit hours) in the first semester and 4999 (3 credit hours) in the second semester in order to complete a written thesis, expanding concepts explored in the senior exhibition.
3. Successful oral defense of the thesis and senior exhibition during the final semester of undergraduate study.
4. At least a final 3.30 cumulative GPA.
5. At least a final 3.5 GPA in courses that count toward the major in art.

Minor in Art

The minor in art requires 18 credit hours of course work, including the following:

- HART 1105 or ARTS 1800
- ARTS 1102 (Drawing and Composition I); and four other ARTS courses, with at least one at the 2000-or-higher level.

Asian Studies

Program of Concentration in Asian Studies

Program of Concentration in Asian American and Asian Diaspora Studies

Honors Program in Asian Studies

Minor in Asian Studies

Minor in Chinese Language and Culture

Minor in Japanese Language and Culture

Minor in Korean Language and Culture

Minor in South Asian Language and Culture

Minor in Asian American and Asian Diaspora Studies

Asian Studies Course List

CHAIR Gerald Figal

DIRECTOR OF UNDERGRADUATE STUDIES Pengfei Li

PROFESSORS Robert Campany, Gerald Figal

ASSOCIATE PROFESSORS Ben Tran

ASSISTANT PROFESSORS Mabel Gergan, Mark John Sanchez, We Jung Yi

MELLON ASSISTANT PROFESSOR Vivian Shaw

PRINCIPAL SENIOR LECTURER Xianmin Liu

SENIOR LECTURERS Divya Chaudhry, Yinghui Guo, Seok Bae Jang, Pengfei Li, Elliott McCarter, Asami Nakano, Hideko Shimizu, Qing Wei, Ji You Whang

SENIOR LECTURER EMERITUS James Auer

LECTURERS Heuijung Hur, Nozomi Imai

Interdepartmental Faculty

PROFESSOR Yoshikuni Igarashi (History)

PROFESSOR EMERITUS Tony K. Stewart (Religious Studies)

ASSOCIATE PROFESSORS Brett Benson (Political Science), Peter Lorge (History), Tracy Miller (History of Art and Architecture), Ruth Rogaski (History), Samira Sheikh (History), Lijun Song (Sociology and Medicine, Health, and Society), Anand V. Taneja (Religious Studies)

ASSISTANT PROFESSORS Calynn Dowler (Religious Studies), Bohyeong Kim (Communication Studies), Adeana McNicholl (Religious Studies), Isidora Miranda (Blair School of Music), Akshya Saxena (English), Meng Zhang (History)

MELLON ASSISTANT PROFESSOR Boyoung Chang (History of Art and Architecture)

SENIOR LECTURER Susan Dine (History of Art and Architecture)

COURSES OFFERED: ASAM, ASIA, CHIN, HNUR, JAPN, KOR, SNSK, TBTN

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language. Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

The Department of Asian Studies provides students with a foundation in the languages, cultures, and societies of Asia and the Asian diaspora necessary to pursue a career among a wide host of global companies, institutions, and agencies that do business in the United States and abroad with the many countries of Asia. Rich in diverse histories and cultures, present-day Asia and the Asian diaspora are at the center of the global future. A degree in Asian Studies equips its students with the linguistic competence and cultural knowledge to join in that global future, whether it be as a foreign press correspondent, investment banker, video game designer, translator/interpreter, educator, diplomat, tour operator, ad firm consultant, or traditional Chinese medicine practitioner. With the study of modern Asian languages at its core, the program embraces a wide variety of courses in the art, culture, economics, history, film and media, politics, religion, medicine, and sociology of East Asia, South Asia, Southeast Asia, Asian America, and Asian diasporic communities throughout the world. Through their teaching and research, faculty members promote a better understanding of multiple facets of life in Asia and the region's past and present relationship with the rest of the world.

Majors and minors are strongly encouraged to complete a study abroad program in Asia. Up to 6 credit hours of Asia-related courses from Vanderbilt-approved study abroad programs may be applied toward the major or minor upon approval of the department chair or director of undergraduate studies. Additional study abroad credit hours may be granted on a case-by-case basis at the discretion of the chair or DUS. Students should consult with the chair or DUS before applying to a study abroad program.

Program of Concentration in Asian Studies

The major in Asian studies requires a minimum of 36 credit hours of course work and is designed to ensure that graduates have both depth and breadth in their understanding of Asia.

For the major in Asian studies, students must formally declare an area of concentration at the time the major is declared (China, Japan, Korea, or South Asia) and complete at least 36 credit hours from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in an Asian language taught in the Department of Asian Studies at the 3301 (Advanced I) level or above. Asian languages not offered by the Asian studies department require the approval of the department chair or the director of undergraduate studies.
2. At least 9 non-language credit hours of courses in area of concentration.
3. At least 6 non-language credit hours of courses eligible for Asian Perspectives.
4. No more than 18 credit hours of courses in any Asian language may be applied to the total 36 credit hours.

Advanced Placement credits in language do not count toward credit hours required for the major or minors, but can figure into the assessment of initial placement within a language track.

Program of Concentration in Asian American and Asian Diaspora Studies

For the major in Asian American & Asian Diaspora Studies, students must complete at least 36 credit hours from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in an Asian language taught in the Department of Asian Studies at the 2202 (Intermediate II) level or above. Asian languages not offered by the Asian studies department require the approval of the department chair or the director of undergraduate studies.
2. At least 12 credit hours of Asian American & Asian Diaspora-eligible courses (code "AA" on Asian Studies course list, including ASAM 2101 or ASAM 2102.
3. At least 6 credit hours of courses eligible for Asian Perspectives at the 3000-level or higher.
4. No more than 18 credit hours of courses in any Asian language may be applied to the total 36 credit hours.

Advanced Placement credits in language do not count toward credit hours required for the majors or minors, but can figure into the assessment of initial placement within a language track.

Honors Program in Asian Studies

Students interested in the Honors Program in Asian Studies should consult with Asian Studies department chair or the director of undergraduate studies no later than the fall semester of their junior year to discuss qualifications and requirements. In addition to following the requirements set by the College of Arts and Science, the following must

be satisfied:

1. All of the requirements for the major in Asian studies.
2. 3 credit hours of ASIA 3980 Juniors Honors Readings. If ASIA 3980 is not offered, this requirement may be substituted by an alternative course, with approval by the Asian Studies department chair or the director of undergraduate studies.
3. ASIA 4998 (3 credit hours) and 4999 (3 credit hours). Honors Research must be taken while in residence at Vanderbilt. The candidate will write an honors thesis while completing the two-semester Honors Research sequence. The honors thesis is a research paper or creative production on a topic defined by the student in consultation with a principal faculty adviser. At least two Asian Studies departmental or interdepartmental faculty, including the principal faculty advisor, serve as the candidate's Honors Committee. The committee assesses on-going progress on the thesis and administers the oral examination.

Note: 3980, 4998, and 4999 may count toward the 36 credit hours required for the major.

4. A minimum 3.30 cumulative grade point average with a minimum 3.50 grade point average in courses that count toward the major in Asian Studies upon completion of the Honors requirements.
5. An oral examination on the thesis typically scheduled within the two months prior to graduation.

Study abroad in a country relevant to the Honors Research project is strongly recommended, but not required.

Minor in Asian Studies

The minor in Asian Studies provides a broad knowledge of the languages, literatures, politics, histories, film and media, arts, and religions of China, Japan, Korea, and South Asia. Students cannot combine the Asian Studies minor with other minors within the Asian Studies Department.

For the minor in Asian Studies, students must complete at least 17 credit hours from the Asian Studies Course List (see below), according to these rules:

1. At least 5 credit hours in any Asian languages taught in the Asian Studies Department at the 2201 (Intermediate I) level or above
2. At least 6 credit hours of History Survey Courses
3. At least 3 credit hours of Humanities Courses
4. At least 3 credit hours of Social Sciences Courses
5. No more than 5 credit hours of any Asian language courses taught in the Asian Studies Department may be applied to the total 17 credit hours

Minor in Chinese Language and Culture

The minor in Chinese Language and Culture is anchored by a firm foundation in language study that is complemented by electives in art, history, literature, film and media, politics, and religion. Students cannot combine the Chinese Language and Culture minor with other minors within the Asian Studies Department.

For the minor in Chinese Language and Culture, students must complete at least 18 total credit hours in China Concentration (CC) courses from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in Chinese language at the 3301 (Advanced I) level or above
2. No more than 13 credit hours of Chinese language (CHIN) courses may be applied to the total 18 credit hours

Minor in Japanese Language and Culture

The minor in Japanese Language and Culture is anchored by a firm foundation in language study that is complemented by electives in art, history, literature, film and media, politics, and religion. Students cannot combine the Japanese Language and Culture minor with other minors within the Asian Studies Department.

For the minor in Japanese Language and Culture, students must complete at least 18 total credit hours in Japan Concentration (JC) courses from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in Japanese language at the 3301 (Advanced I) level or above

2. No more than 13 credit hours of Japanese language (JAPN) courses may be applied to the total 18 credit hours

Minor in Korean Language and Culture

The minor in Korean Language and Culture is anchored by a firm foundation in language study that is complemented by electives in history, literature, film, and media. Students cannot combine the Korean language and culture minor with other minors within the Asian Studies Department.

For the minor in Korean Language and Culture, students must complete at least 18 total credit hours in Korean Concentration (KC) courses from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in Korean language at the 3301 (Advanced I) level or above
2. No more than 13 credit hours of Korean language (KOR) courses may be applied to the total 18 credit hours

Minor in South Asian Language and Culture

The minor in South Asian Language and Culture is anchored by a firm foundation in language study that is complemented by electives in art, history, literature, film and media, politics, and religion. Students cannot combine the South Asian language and culture minor with other minors within the Asian Studies Department.

For the minor in South Asian language and culture, students must complete at least 18 total credit hours in South Asia Concentration (SA) from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in a South Asian language (Hindi-Urdu or Sanskrit) at the 3301 (Advanced I) level or above
2. No more than 13 credit hours of South Asian language (HNUR or SNSK) courses may be applied to the total 18 credit hours

Minor in Asian American and Asian Diaspora Studies

The minor in Asian American & Asian Diaspora Studies provides a broad knowledge of the histories, cultures, societies, and languages of Asian American and global Asian diasporas. Students cannot combine the Asian American & Asian Diaspora Studies minor with other minors within the Asian Studies Department.

For the minor in Asian American & Asian Diaspora Studies, students must complete at least 17-18 credit hours from the Asian Studies Course List (see below), according to these rules:

1. 3 credit hours in either ASAM 2101 or ASAM 2012
2. At least 3 credit hours in any Asian languages taught in the Asian Studies Department at the 2201 (Intermediate I) level or above
3. At least 6 credit hours of Asian American & Asian Diaspora (AA) courses and either
4. 6 credit hours of courses eligible for Asian Perspectives, to total 18 credit hours (not double counting courses above), OR

Up to 5 credit hours of any Asian language courses taught in the Asian Studies Department may be applied to total 17 credit hours.

Asian Studies Course List

All courses on this list count toward the credit-hour requirements for the major and the minors within the Program in Asian Studies. Their eligibility for specific requirements within the major and minors is indicated by the following codes:

China Concentration = CC

Japan Concentration = JC

Korea Concentration = KC

South Asia Concentration = SA

Asian Perspectives = AP

Asian American/Asian Diaspora = AA

History Survey Course = HS

Humanities Course = HU

Social Science Course = SS

Any given course may be applied to only one category of requirement even if it may be eligible for more than one.

Courses marked with an * require approval from the Asian Studies chair or director of undergraduate studies.

Chinese Language Courses

CHIN 1011. Basic Chinese (CC)

CHIN 1012. Basic Chinese (CC)

CHIN 1101. Elementary Chinese I (CC)

CHIN 1102. Elementary Chinese II (CC)

CHIN 1231. Calligraphy (CC, HU)

CHIN 2201. Intermediate Chinese I (CC)

CHIN 2202. Intermediate Chinese II (CC)

CHIN 2211. Chinese for Heritage Learners I (CC)

CHIN 2212. Chinese for Heritage Learners II (CC)

CHIN 3301. Advanced Chinese I (CC)

CHIN 3302. Advanced Chinese II (CC)

CHIN 3302W. Advanced Chinese II (CC)

CHIN 3851. Independent Study (CC)*

CHIN 3852. Independent Study (CC)*

CHIN 4001. Fourth-year Conversational Chinese (CC)

CHIN 4002. Fourth-year Conversational Chinese (CC)

CHIN 4401. Business Chinese I (CC)

CHIN 4402. Business Chinese II (CC)

CHIN 4403. Readings in Modern Chinese Media (CC)

CHIN 4404. Readings in Modern Chinese Media (CC)

CHIN 4405. Classical Chinese Literature and Philosophy. (CC, HU)

CHIN 4406. Readings in Modern Literary Chinese (CC, HU)

Hindi-Urdu Language Courses

HNUR 1101. Elementary Hindi-Urdu I (SA)

HNUR 1102. Elementary Hindi-Urdu II (SA)

HNUR 2201. Intermediate Hindi-Urdu I (SA)

HNUR 2202. Intermediate Hindi-Urdu II (SA)

HNUR 3301. Advanced Hindi-Urdu I (SA)

HNUR 3302. Advanced Hindi-Urdu II (SA)

HNUR 3851. Independent Study (SA)*
HNUR 3852. Independent Study (SA)*

Japanese Language Courses

JAPN 1011. Basic Japanese I (JC)

JAPN 1012. Basic Japanese II (JC)

JAPN 1013. Practical Japanese Conversation (JC)

JAPN 1101. Elementary Japanese I (JC)

JAPN 1102. Elementary Japanese II (JC)

JAPN 1231. Tadoku: Extensive Reading in Japanese (JC)

JAPN 2201. Intermediate Japanese I (JC)

JAPN 2202. Intermediate Japanese II (JC)

JAPN 2232. Japanese through Manga (JC)
JAPN 2233. Language through Japanese Food Culture (JC, HU)

JAPN 3301. Advanced Japanese I (JC)

JAPN 3302. Advanced Japanese II (JC)

JAPN 3851. Independent Study (JC)*

JAPN 3852. Independent Study (JC)*

JAPN 3891. Special Topics in Advanced Japanese (JC)

Korean Language Courses

KOR 1101. Elementary Korean I (KC)

KOR 1102. Elementary Korean II (KC)

KOR 2201. Intermediate Korean I (KC)

KOR 2202. Intermediate Korean II (KC)

KOR 3301. Advanced Korean I (KC)

KOR 3302. Advanced Korean II (KC)

KOR 3851. Independent Study (KC)

KOR 3852. Independent Study (KC)

Sanskrit Language Courses

SNSK 1101. Elementary Sanskrit I (SA, AP)

SNSK 1102. Elementary Sanskrit II (SA, AP)

SNSK 2201. Intermediate Sanskrit I (SA, AP)

SNSK 2202. Intermediate Sanskrit II (SA, AP)

SNSK 3301. Advanced Sanskrit I (SA, AP)

SNSK 3302. Advanced Sanskrit II (SA, AP)

Asian Studies

ASIA 1001. Commons iSeminar: Cultures of India & Japan (AP, HU)

ASIA 1111. First-Year Writing Seminar (as appropriate)*

ASIA 1201. Writing Southeast Asia (AP, HU)

ASIA 1680. Inside China (CC, SS)

ASIA 1682. Chinese Culture through Tai Chi and Qi Gong (CC)

ASIA 1780. Health and Well-being at the Margins of Indian Society (SA, SS)

ASIA 1881W. The Body in Modern Japanese Culture (JC, HU)

ASIA 2100W. Fashioning the Self: Coming of Age and Asian Modernities (AP, HU)

ASIA 2210W. Hollywood Hanoi (AP, HU)

ASIA 2220. Violence and Media in Southeast Asia (AP, HU)

ASIA 2302. Popular Culture of South Asia (SA, HU)

ASIA 2303. Classical India in the Modern World (SA, HS, AP)

ASIA 2304. The Bhagavad Gita (SA, HU)
ASIA 2306. Environment & Development in South Asia (SA, SS, AP)
ASIA 2307. Transnational South Asia (AA, SA, SS, AP)
ASIA 2308. Narratives of Disaster & Apocalypse (AP)

ASIA 2411. Cultural History of Korea (KC, HS, AP)

ASIA 2412. Global Korean Cinema (KC, HU, AP)

ASIA 2413. History of Modern Korea (KC, HS, AP)

ASIA 2414. Food and Family in Korean Pop Culture (KC, HU, AP)

ASIA 2415W. Blood, Sweat, and Tears in Korean Literature (KC, HU)
ASIA 2416. The Korean War through Film & Fiction (KC, HU)

ASIA 2511. Popular Culture in Modern Japan (JC, HU)

ASIA 2512. Explorations of Japanese Animation (JC, HU)

ASIA 2513W. Media Monsters in Contemporary Japan (JC, HU)
ASIA 2514W. Contemporary Japan through Film & Fiction (JC, HU)

ASIA 2605. Romancing the Nation in Modern Chinese Literature (CC, HU)

ASIA 2606. Martial Tradition in Chinese Literature (CC, HU)

ASIA 2607. Self and Society in Pre-modern Chinese Literature (CC, HU)

ASIA 2608. Chinese Drama: 13th to 20th Centuries (CC, HU)

ASIA 2609W. Writing and Gender in Traditional China (CC, HU)

ASIA 2610. Overseas Encounters (AA, AP, HU)
ASIA 2620. Chinese Culture through Calligraphy (CC, HU)

ASIA 2630. Chinese Medicine (CC, SS)

ASIA 3151. The Third World and Literature (AP, HU)

ASIA 3155. Blackness and the Asian Century (AP, HU)

ASIA 3633. Self-Cultivation in Ancient China (CC, HU)

ASIA 3851. Independent Study (as appropriate)*

ASIA 3852. Independent Study (as appropriate)*

ASIA 3891. Special Topics (as appropriate)*

ASIA 3892. Special Topics* (as appropriate)

ASIA 3980. Junior Honors Readings (as appropriate)*

ASIA 4998. Honors Research (as appropriate)*

ASIA 4999. Honors Research (as appropriate)*

Asian American Studies

ASAM 2101. Asian American History until 1924 (AA, AP)

ASAM 2102. Asian American History, 1924 to the Present (AA, AP)

ASAM 2106. Sociology of Asian America (AA, AP)

ASAM 2107. Social Movements in Asia and Asian America (AA, AP)
ASAM 3101. Southeast Asian Americans (AA, AP)
ASAM 3102. Cold War Asian America (AA, AP)
ASAM 3106. Race and the Environment in Asian America (AA, AP)
ASAM 3107. Science, Technology, and the Body in Global Asia (AA, AP)

Cinema and Media Arts

CMA 3892. Special Topics in the Study of Film (as appropriate)*

English

ENGL 1210W. Prose Fiction: Forms and Techniques (as appropriate)*

ENGL 1260W. Introduction to Literary and Cultural Analysis (as appropriate)*

ENGL 2319W. World Literature, Modern (as appropriate)*

ENGL 3662. Asian American Literature (AA, AP, HU)*

ENGL 3670. Colonial and Post-Colonial Literature (as appropriate)*

ENGL 3670W. Colonial and Post-Colonial Literature (as appropriate)*

History
HIST 1050. East Asia since 1800 (AP, SS, HS)

HIST 1060. Premodern China (CC, SS, HS)

HIST 1070. China from Empire to the People’s Republic (CC, SS, HS)

HIST 1080. Premodern Japan (JC, SS, HS)

HIST 1090. Modern Japan (JC, SS, HS)
HIST 1111 First-Year Writing Seminar (as appropriate)*

HIST 1160. Modern South Asia (SA, SS, HS)

HIST 1161. India Before Europe: 3000 B.C.E–1750 C.E. (SA, SS, HS)
HIST 1162. The East India Company, 1600-1858 (AP, SS)

HIST 1881. The Body in Modern Japanese Culture (JC, HU)

HIST 1882W. Japan Through Historical Fiction (JC, HU)

HIST 2100. Politics and Catastrophe in Modern China (CC, SS)

HIST 2105. Chinese Thought (CC, HU)

HIST 2106. A Global History of Tea (AP, SS)
HIST 2107. Chinese Economic History (CC, SS)

HIST 2108. Environment and Economy in China since 1700 (CC, SS)

HIST 2110. Crisis Simulation in East Asia (AP, SS)

HIST 2111. China and the United States: Intertwined Histories (AP, CC, SS)

HIST 2115. Play and Pleasure in Early Modern Japan (JC, HU)

HIST 2119. The Pacific War in Cinematic Memory (JC, HU)

HIST 2120. Japan’s War and Postwar, 1931–1989 (JC, SS)

HIST 2140. The Mughal World (SA, SS)

HIST 2150. India and the Indian Ocean (SA, AP, SS)

HIST 3090 Tokyo: History and Image (JC, SS)

HIST 3112W. China and the World (CC, AP, SS)

HIST 3220W. Images of India (SA, HU)

History of Art and Architecture

HART 1200. Arts of East Asia (AP, HU)

HART 1205. Arts of South and Southeast Asia (SA, AP, HU)

HART 1210W. Art and Ritual in Asia (AP, HU)

HART 1220. History of Asian Architecture (AP, HU)

HART 2100. Architecture and the Mapping of Empire in Asia (AP, HU)

HART 2110. Arts of China (CC, HU)

HART 2120. Arts of Korea (KC, HU)

HART 2130. Arts of Japan (JC, HU)

HART 2150. East Asian Architecture and Gardens (AP, HU)

HART 2170. Religion and Politics in South and Southeast Asian Art (SA, AP, HU)

HART 2175. Modern and Contemporary Indian Architecture (AP, HU)
HART 2815. Digital Heritage, Methods, and Practice: The Chinese Temple ((CC, HU)

HART 3112. The Arts of China during the Liao-Song Period (CC, HU)

HART 3140. Healing and Art in East Asia. (AP, HU)

HART 3164W. Art of Buddhist Relic and Reliquary (AP, HU)

HART 3172. Himalayan Art: Art of the Divine Abode (AP, HU)

HART 3174. The South Asian Temple (SA, HU)

Human and Organizational Development — International Leadership and Policy

HODI 3260. Education in the Asia-Pacific Region: Development, Reform, and Innovation (AP, SS)

Medicine, Health, and Society

MHS 2310. Chinese Society and Medicine (CC, SS)

Political Science

PSCI 2216. The Chinese Political System (CC, SS)

PSCI 3894. Selected Topics in Comparative Politics (as appropriate)*
PSCI 3895. Selected Topics in International Politics (as appropriate)*

Religious Studies

RLST 1010. Encountering Religious Diversity (AP, HU)

RLST 1111. First-Year Seminar (as appropriate)*
RLST 1500. Introduction to Islam (AP, HU)

RLST 1637. Religions of Tibet and the Himalaya (AP, HU)

RLST 1700. Religions in China (CC, HU)

RLST 1710. Religions of Japan (JC, HU)

RLST 2134. Asian and Asian American Religions in the United States (AP)

RLST 2644. Buddhist Traditions (AP, HU)

RLST 2664. Foundations of Hindu Traditions (SA, AP, HU)

RLST 3561. Islam in South Asia (SA, HU)

RLST 3650. Classical Philosophies of India (SA, HU)

RLST 3669. Sacred Space in the Tibetan World (AP, HU)

RLST 3670W. Buddhism and the State (AP, HU)

RLST 3747. Daoist Tradition (AP, HU)

RLST 3749. Zen Buddhism (AP, HU)

RLST 3753. East Asian Buddhism (AP, HU)

RLST 3775. Chinese Religions through Stories (CC, HU)

RLST 4665. Mythologies and Epics of South Asia (SA, HU)

RLST 4666. Devotional Traditions of South Asia: Hindu, Muslim, Sikh (SA, AP, HU)

RLST 4774. Japanese Mythology (JC, HU)

Biochemistry and Chemical Biology

Program of Concentration

Honors Program

CO-DIRECTORS Brian O. Bachmann, Alissa Hare

Advisory Committee

PROFESSORS Brandt Eichman (Biological Sciences), Lawrence J. Marnett (Chemistry), John McLean (Chemistry), David W. Wright (Chemistry), David Cortez (Biochemistry)

ASSOCIATE PROFESSOR Bruce M. Damon (Radiology and Radiological Sciences)

ASSISTANT PROFESSOR Lauren Parker Jackson (Biological Sciences)

SENIOR LECTURER Cynthia T. Brame (Biological Sciences), Alissa Hare (Chemistry)

COURSES OFFERED: BCB

The study of chemical processes within living systems is an interdisciplinary enterprise that spans the fields of chemistry, molecular and cellular biology, biophysics, and engineering. Chemical biology and biochemistry use chemical insight, techniques, and tools to study or manipulate biological systems. They are the cornerstones of medical technology and therapeutics. To provide students with training in modern principles at a chemistry-biology interface, Vanderbilt's interdisciplinary major in biochemistry and chemical biology incorporates expertise from multiple departments in the university. Students receive a broad background in the natural sciences (chemistry, biology, physics) and mathematics, followed by fundamental core training in principles of biochemistry and chemical biology that involves both theoretical and laboratory course work. Students then pursue an area of emphasis in either biochemistry or chemical biology through upper-level elective courses. Students participate in independent research in laboratories of biochemistry and chemical biology faculty. Additional research experience is available in the Honors Program.

Program of Concentration

The biochemistry and chemical biology major tracks share fundamental core elements but have a distinct set of foundational courses, track-specific electives, and laboratory requirements. All students are required to complete a set of basic science and mathematics courses. The major consists of 32 credit hours beyond these basic science and mathematics courses. All students complete 12 credit hours of core courses, 14 credit hours of either biochemistry or chemical biology track, and 6 credit hours of general electives. For suggested paths of completion, see the Program in Biochemistry and Chemical Biology website.

Required Math and Science Courses for Both Tracks

(38 credit hours)

Biological Sciences — BSCI 1510, 1511, 1510L, and either 1511L or 1512L

Chemistry — CHEM 2221 or 2211, CHEM 2222 or 2212, CHEM 2221L and CHEM 2222L

Mathematics — MATH 1200 or 1300 and MATH 1201 or 1301

Physics — PHYS 1501 or 1601, PHYS 1502 or 1602, PHYS 1501L or 1601L, and PHYS 1502L or 1602L

Note: These credit hours do not count toward the major. AP credit may satisfy some of these requirements.

Fundamental Core Courses for all Tracks (12 credit hours)

BCB 4965, BSCI 2520, CHEM 3710, CHEM 3320

Tracks (14 credit hours)

Biochemistry Track

Biochemistry Foundations (3 credit hours) — BSCI 4265

Biochemistry Electives (9 credit hours) — BCB 2101, BCB 4320, BSCI 2201, BSCI 2210, CHEM 2100, CHEM 4720

Laboratory (2 credit hours) — BCB 3201

Chemical Biology Track

Chemical Biology Foundations (5 credit hours) — CHEM 2100 and 2100L, BCB 2101

Chemical Biology Electives (6 credit hours) — BCB 4320, BSCI 4265, CHEM 4720

Chemical Biology Laboratory (3 credit hours) — BCB 3201, BCB 4966

General Electives (6 credit hours)

Electives may be chosen from any of the following:

BCB 2101, BCB 3101, 3201, 4320, 4966; BME 2200, 3000, 4400, 4410, 4500; BSCI 2201, 2210, 3230, 3234, 3245, 3247, 3252, 3256, 3270, 3630, 4265, 4266, 4274; CHEM 2100, 3020, 3300, 4230, 4720; CS 1101, 1103, 2204; NSC 2201, 3245, 3260, 3269, 3274, 3891, 4961

Courses taken to fulfill track requirements are not eligible for elective credit.

Honors Program

Students in either Biochemistry or Chemical Biology track may apply to the Honors Program if they hold a minimum cumulative GPA of 3.3 and a GPA of at least 3.4 in courses that count toward the major at the end of their junior year. The purpose of the Honors Program is to provide students with an intensive independent research experience in a host laboratory. Honors candidates must complete two semesters (3 credit hours each semester) of Honors Research (BCB 4999). The successful completion of one semester of BCB 4999 may substitute for the BCB 4965 course requirement. Upon entering the program at the end of the junior year, candidates assemble a committee of the major research adviser and two additional faculty members appropriate to the area of research. As part of the research course work, the candidate will write an honors thesis. At the end of the graduating semester, honors candidates must submit a written thesis and give an oral defense of their research.

Biological Sciences

CHAIR Brandt F. Eichman

VICE CHAIR Katherine L. Friedman

DIRECTOR OF UNDERGRADUATE STUDIES Mark A. Woelfle

DIRECTOR OF GRADUATE STUDIES Julian F. Hillyer

PROFESSORS EMERITI Burton J. Bogitsh, Robert Kral, Wallace M. LeStourgeon, Terry L. Page, Charles K. Singleton, Gerald J. Stubbs, Robley C. Williams Jr.

PROFESSORS Seth R. Bordenstein, Kendal S. Broadie, Kenneth C. Catania, Brandt F. Eichman, Todd R. Graham, Julian F. Hillyer, Carl H. Johnson, Douglas G. McMahon, James G. Patton, Antonis Rokas, Laurence J. Zwiebel

ASSOCIATE PROFESSORS D. Kilpatrick Abbot, Larisa DeSantis, Katherine L. Friedman, Daniel J. Funk

ASSISTANT PROFESSORS Megan G. Behringer, Nicole Creanza, Lauren Parker Jackson, Amanda Lea, Jared T. Nordman, Maulik R. Patel, Lars Plate, Ann Tate, Allison Walker

PRINCIPAL SENIOR LECTURERS A. Denise Due-Goodwin, Mark A. Woelfle, Cynthia T. Brame

SENIOR LECTURERS Amanda R. Benson, Thomas Clements, Jessica Gilpin, Allison Leich Hilbun, James D. Pask

COURSES OFFERED: BSCI

The biological sciences encompass the study of living organisms and life processes at all levels: ecosystems, populations, individual organisms, tissues, cells, subcellular structures, and molecules. The Department of Biological Sciences offers courses that address all of these levels and programs of study for undergraduates and for graduate students seeking the Ph.D.

For undergraduates, the department offers three majors and a minor. All three majors have honors tracks. The Biological Sciences (BioSci) major is designed for the student seeking a broad base in the biological sciences; it is a highly flexible program that allows a certain amount of specialization in upper-level courses. The Molecular and Cellular Biology (MCB) major is designed for students with an interest in developing an in-depth understanding of how living systems function at the molecular and cellular levels, with upper-level course options ranging in content from biophysics and biochemistry to developmental biology, and to molecular aspects of evolution. The Ecology, Evolution, and Organismal Biology (EEOB) major is designed for students with an interest in the areas of biology that span genomics, ecology, evolutionary biology, comparative genomics, organismal biology, and conservation biology. The department also offers a minor in biological sciences for students majoring in other disciplines. Interested students should consult the director of undergraduate studies.

The department offers undergraduates opportunities for engaging in faculty-led research projects for course credit. Students may receive an introduction to the workings of a scientific laboratory through an internship, or a more intensive, hands-on experience in directed or independent laboratory research. Students on the honors track of any of the three majors carry out a major honors research project and write an honors thesis. More information about the majors and minor offered by the department, the honors track of each major, and research opportunities open to undergraduates is available at our website: as.vanderbilt.edu/biosci.

Students may declare only one of the majors offered by the Department of Biological Sciences; double or triple majors within the department are not permitted. It is strongly recommended that all students take one year of calculus or calculus/statistics, and one year of physics. Students are encouraged to work with their major advisers to choose upper-level courses appropriate to their chosen majors.

General Requirements

- All students in programs of concentration offered by the Department of Biological Sciences must take two semesters of general chemistry and lab (Chemistry 1601–1602 and 1601L–1602L) and two semesters of organic chemistry (Chemistry 2211/2221–2212/2222) and lab (2221L–2222L).
- A total of 30 credit hours of Biological Sciences courses, including the 8 credit hours of 1510–1511 and 1510L and either 1511L or 1512L, is required in all majors.
- Courses numbered below 1500 do not count toward the major or minor.
- Below is a listing of the required courses for the Biological Sciences (BioSci) major, for the Molecular and Cellular Biology (MCB) major, and for the Ecology, Evolution, and Organismal Biology (EEOB) major. Students with specialized interests within either of the specialized majors may substitute one of the intermediate courses with an upper- level course with the permission of the director of undergraduate studies and the Biological Sciences Curriculum Committee (Intermediate Biological Sciences courses: 2101, 2201, 2201L, 2205, 2210, 2210L, 2218, 2219, 2238, 2238L, 2520).
- All majors must complete at least 2 credit hours of 3965, 3850, or 3861, though only one semester of 3965 may count toward the 30 credit hours.
- A total of no more than 7 credit hours of 3850, 3861, or 3961 may count toward the major.
- If option 1 (see below) is used to meet the laboratory requirement, then BSCI 3965 or 2 credit hours of 3850 is required.
- Either BSCI 3229 or BSCI 3270, but not both, may count toward the major or minor.

For Honors, additional requirements must be met. For entry into Honors, students must satisfy the conditions required by the College of Arts and Science for admission to departmental honors programs. Students must have an overall grade point average equal to or greater than 3.3, and a grade point average in courses required for the appropriate biological sciences major equal to or greater than 3.4 at the time of entry. Applications must be approved by a majority vote of the faculty of the department. To receive honors or highest honors in biological sciences, a student in the departmental Honors Program must:

- Complete the requirements for either the MCB, BioSci, or EEOB major, achieving a minimum cumulative grade point average of 3.4 in all courses that count toward the major;
- Satisfactorily pursue a research project under the supervision of the adviser with a minimum of 10 credit hours of Honors Research, BSCI 4999;
- Give a progress report to the Honors Committee at the end of the first semester of This will consist of a short, written progress report to be distributed to the Honors Committee one week before an oral presentation and meeting with the committee. The meeting must be scheduled before the start of finals week;
- At the end of the second semester of Honors Research, prepare a thesis based on the research project, to be read and evaluated by the Honors Committee;
- Present the thesis orally before the Honors Committee and faculty in the Department of Biological Sciences.

Minor in Biological Sciences

A minor in biological sciences requires a minimum of 18 hours including at least 9 credit hours earned in residence at Vanderbilt. Credit hours for the minor must include BSCI 1510–1511b; 1510L and either 1511L or 1512L; 2210; and one other intermediate course. No more than 2 credit hours of 3860, 3861, 3850, and 3961 may be counted toward the minor.

Specific Requirements for Individual Majors

BIOLOGICAL SCIENCES (BSCI) MAJOR

BSCI 2205, 2210, and one additional intermediate course (2101, 2201, 2218, 2219, 2238 or 2520)

Intermediate Courses

*BSCI 2101 or BSCI 3101 (but not both) can be used to fulfill elective credits. If BSCI 2101 is used to fulfill the intermediate course requirement, then BSCI 3101 can be used to fulfill elective credits.

Laboratory	**Option 1: Lab**	**Option 2: Lab and Research**	**Option 3: Research Intensive**
	2 labs (BSCI 2201L, 2210L, 2218, 2219, or 2238L). See note above regarding BSCI 3965 or 3850.	1 lab plus 2 semesters (at least 6 credit hours total) of directed & independent research (BSCI 3861, 3961, 4999)	At least 12 credit hours of research in directed, independent and as needed, honors research courses (BSCI 3861, 3961, 4999)

ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY (EEOB) MAJOR

BSCI 2205, 2210, and one of 2218 or 2219 or 2238

Intermediate Courses

*BSCI 2101 or BSCI 3101 (but not both) can be used to fulfill elective credits. If BSCI 2101 is used to fulfill the intermediate course requirement, then BSCI 3101 can be used to fulfill elective credits.

Laboratory	**Option 1: Lab**	**Option 2: Lab and Research**	**Option 3: Research Intensive**
	2 labs (one of BSCI 2210L, 2218, 2219, or 2238L; plus one of the following: BSCI 2201L, 2210L, 2218, 2219, or 2238L). See note above regarding BSCI 3965 or 3850.	1 lab (BSCI 2210L, 2218, 2219, or 2238L) plus 2 semesters (at least 6 credit hours total) of directed and independent research (BSCI 3861, 3961, 4999)	At least 12 credit hours of research in directed, independent and, as needed, honors research courses (BSCI 3861, 3961, 4999)

MOLECULAR AND CELLULAR BIOLOGY (MCB) MAJOR

BSCI 2201, 2210, and 2520

Intermediate Courses

BSCI 2101 or BSCI 3101 (but not both) can be used to fulfill elective credits.

Laboratory	**Option 1: Lab**	**Option 2: Lab and Research**	**Option 3: Research Intensive**
	2 labs (one of BSCI 2201L or 2210L is required; plus one of the following: 2201L, 2210L, 2218, 2219, or 2238L). See note above regarding BSCI 3965 or 3850.	1 lab (BSCI 2201L or 2210L) plus 2 semesters (at least 6 credit hours total) of directed and independent research (BSCI 3861, 3961, 4999)	At least 12 credit hours of research in directed, independent and, as needed, honors research courses (BSCI 3861, 3961, 4999)

Biomedical Engineering

CHAIR Michael R. King

ASSOCIATE CHAIR W. David Merryman

DIRECTOR OF UNDERGRADUATE STUDIES Amanda Lowery

DIRECTOR OF GRADUATE STUDIES Craig Duvall

DIRECTOR OF GRADUATE RECRUITING Yuankai Tao

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PROFESSORS Adam W. Anderson, Daniel Brown, Edward Chaum, André Churchwell,Christos Constantinidis, Benoit M. Dawant, Mark D. Does, Craig Duvall, Todd D. Giorgio, John C. Gore, Scott A. Guelcher, Paul Harris, Frederick R. Haselton, S. Duke Herrell, E. Duco Jansen, Michael R. King, Robert F. Labadie, Bennett A. Landman, Anita Mahadevan-Jansen, Karen Joos, W. David Merryman, Michael I. Miga, Reed Omary, Leon Partain, Cynthia Reinhart-King, Krishnendu Roy, Ashish Shah, James West, John P. Wikswo, Jr.

RESEARCH PROFESSORS Andre Diedrich, Zhaohua Ding, W. Patrick Roach

ADJUNCT PROFESSOR Stacy Klein-Gardner

ADJOINT PROFESSOR Richard Mu

ASSOCIATE PROFESSORS Franz J. Baudenbacher, Leon Bellan, Audrey K. Bowden, Brett C. Byram, Edward Y. Chekmenev, Bruce M. Damon, Edwin Donnelly, William H. Fissell, Deborah Lannigan, Ethan S. Lippman, Victoria L. Morgan, Jeffry S. Nyman, Cynthia B. Paschal, Wellington Pham, John J. Reese, Yuankai Tao, James West, John T. Wilson, Karl Zelik

ASSOCIATE PROFESSORS OF THE PRACTICE Amanda Lowery, Christina C. Marasco

RESEARCH ASSOCIATE PROFESSORS Nick Adams, Justin Baba, Rebecca Cook, Daniel J. France, Mukesh Gupta, Lisa McCawley, Baxter Rogers

ASSISTANT PROFESSORS Jonathan Brunger, James Cassat, Charles Caskey, Catie Chang, Wenhao Deng, Dario Englot, Nicholas Ferell, Giresh Hiremath, Jacob Houghton, Clayton Kaiser, Gregor Neuert, Jack H. Noble, Ipek Oguz, Aron Parekh, Marjan Rafat, Mikail Rubinov, Seth A. Smith, Julie Sterling, Wesley Thayer, Eric R. Tkaczyk, Lauren Woodard, Junzhong Xu, Xin Maizie Zhao, Natalina Zulina

ASSISTANT PROFESSORS OF THE PRACTICE Romina Del Bosque, Joseph Schlesinger

RESEARCH ASSISTANT PROFESSORS Charleson S. Bell, Zhipeng Cao, Logan Clements, Richard D'Arcy, Richard Dortch, Shannon Faley, Yurui Gao, Kevin Harkins, Nidhi Jyotsana, Dmitry Markov, Sinead E. Miller, Bryan Millis, Patricia K. Russ, Teresa K. Sanders, Veniamin Sidorov, Eric Spivey, Zhenjiang Zhang

ADJUNCT ASSISTANT PROFESSORS Valerie Guenst, Kalana Jayawardana

ADJOINT ASSISTANT PROFESSORS Frank Block, Brian C. Evans, Judy T. Lewis, Amber Simpson

INSTRUCTOR Amanda Buck

COURSES OFFERED: BME

The foundations of biomedical engineering are the same as those in other engineering disciplines: mathematics, physics, chemistry, and engineering principles. Biomedical engineering builds on these foundations to solve problems in biology and medicine over the widest range of scales-from the nanoscale and molecular levels to the whole body. Biomedical engineering provides a robust platform for employment in the medical device and instrumentation industries as well as careers in companies that specialize in the development and application of biologics, biomaterials, implants and processes. Our graduates gain entry into nationally recognized graduate schools for continuing studies in biomedical engineering.

Biomedical engineering is also a rigorous path for admission to and success in medical school for those students willing and able to excel in mathematics, physics, chemistry, biology, physiology, and engineering.

The Department of Biomedical Engineering at Vanderbilt is unique among biomedical engineering programs in its immediate proximity to the world class Vanderbilt Medical Center, located on our compact campus. Our School of Medicine is among the top ten in funding from the National Institutes of Health and includes a National Cancer Institute- recognized Comprehensive Cancer Center, a major children's hospital and a Level I trauma center. This proximity and the strong relationships among faculty across multiple schools stimulate high impact research and provide unique educational and research opportunities for students.

Degree Programs. The Department of Biomedical Engineering offers courses of study leading to the B.E., M.S., M.Eng., and Ph.D. Vanderbilt biomedical engineering is a well-established program with undergraduate degrees granted continuously since 1965. Our undergraduate curriculum undergoes regular review and revision to ensure relevancy and to maintain full ABET accreditation. Students have complete flexibility in the selection of biomedical engineering, technical, and open electives. This allows students to design their own focus areas such as regenerative medicine and tissue engineering, wearables and point-of-care diagnostics, global health, surgery and engineering, robotics and prosthetics, lasers and medicine, medical imaging, biotechnology and nanomedicine, medical technology and entrepreneurship.

Facilities. The Department of Biomedical Engineering is located in Stevenson Center. Undergraduate instructional laboratories are equipped for study of biomedical processes, measurement methods and instrumentation. These facilities are equipped with embedded systems for instrumentation, design, and testing that mirror professional practice. Specialized facilities for biomedical imaging, biophotonics, surgery and engineering, regenerative medicine, nanobiotechnology, and nanomedicine are used both for faculty-led research and instructional purposes.

Undergraduate Honors Program. With approval of the Honors Program director, junior and senior students in biomedical engineering who have achieved a minimum grade point average of 3.5 may be accepted into the undergraduate Honors Program. Students in the program take at least 6 credit hours of 5000-level or above (graduate) biomedical engineering courses, which can be counted toward the 127-hour undergraduate degree requirements as biomedical engineering electives or which can be taken for graduate school credit. Students in the Honors Program must also complete a two-semester-long research project and present a research report; this is generally accomplished through the BME 3860 and 3861 Undergraduate Research elective courses. Honors students must make a grade point average of 3.0 in these classes and maintain an overall 3.5 GPA to be designated as an

honors graduate. The diploma designation is Honors in Biomedical Engineering.

Curriculum Requirements

The B.E. in biomedical engineering requires a minimum of 127 hours, distributed as follows:

1. Mathematics (15 hours): MATH 1300, 1301, 2300, 2400.
2. Basic Science (20 hours): CHEM 1601, 1601L, 1602, 1602L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510, 1510L.
3. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1101 or 1103 or 1104. (CS 1103 is strongly recommended except for students minoring in Computer Science).
4. Electrical Engineering (3 hours): ECE 2112.
5. Biomedical Engineering (38 hours): BME 2100, 2301, 2302, 2400, 2900W, 3000, 3301, 3302, 3400, 3500, 3900W, 4901W, 4950, 4951, 4959.
6. Biomedical Engineering electives (12 hours) comprising:
    1. BME courses numbered 2210 and higher (except BME 2860 and designated sections of 3890–3893) to include up to 6 hours total of BME 3860, 3861.
    2. Any one of the following: CHBE 4500, 4800, 4805, 4810, 4820, 4870; EECE 3214, 4353, 4354; ENVE 4610; ME 2220.
7. Technical electives (9 hours) comprising:
    1. BME, CHBE, CE, CS, ECE, ENGM, ENVE, ME, MSE, NANO, and SC courses except BME 1015, CHBE 3300, CE 2200, CS 1000, 1151, ENGM 2160, 2440, 3100, 3350, 4800, ME 2171, and any School of Engineering courses numbered 2860. Up to 3 hours of independent study courses in the School of Engineering may be taken as technical electives.
    2. ES 3230, 3231, and 3232
    3. Courses numbered 2000 or higher in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution category except MATH 2610, 2810, 2820, and 3000.
    4. BSCI 1511, 1511L; MHS 1500, 1600.
8. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
9. Open electives (6 hours).

Undergraduates in biomedical engineering may apply the pass/fail option only to courses taken as liberal arts core or open electives, subject to school requirements for pass/fail.

Specimen Curriculum for Biomedical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
BSCI 1510, 1510L	Introduction to Biological Sciences with Laboratory	4	–
BME 2100	Biomechanics	–	3
BME 2301, 2302	Systems Physiology I, II	3	3
BME 2400	Quantitative Methods I: Statistical Analysis	–	3
BME 2900W	Biomedical Engineering Laboratory I	–	1
ECE 2112	Circuits I	–	3
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics with Laboratory II	4	–
	Liberal Arts Core	3	–
		17	17
JUNIOR YEAR			
BME 3000	Physiological Transport Phenomena	3	–
BME 3301, 3302	Biomedical Instrumentation I, II	4	4
BME 3400	Quantitative Methods II: Signals and Modeling	3	–
BME 3500	Biomedical Materials	–	3
BME 3900W	Biomedical Engineering Laboratory II	1	–
	Biomedical Engineering and/or Technical Elective	3	6
	Liberal Arts Core	3	3
		17	16
SENIOR YEAR			
BME 4901W	Biomedical Engineering Laboratory III	1	–
BME 4950, 4951	Design of Biomedical Engineering Systems I, II	2	3
BME 4959	Senior Engineering Design Seminar	1	–
	Biomedical Engineering and/or Technical Elective	6	6
	Liberal Arts Core	3	3
	Open Elective	3	3
		16	15

Double Majors

I. The double major in biomedical engineering and electrical and computer engineering requires a minimum of 130 semester hours. A specimen curriculum for the double major with electrical and computer engineering can be found on the biomedical engineering department's website. The requirements include those numbered 1, 2, and 8 for the B.E. in biomedical engineering and the following:
   a. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1101 or 1104.
   b. Biomedical Engineering Core (32 hours): BME 2100, 2301, 2302, 2400, 2900W, 3000, 3302, 3500, 3900W, 4901W, 4950, 4951, 4959.
   c. Biomedical Engineering Electives (3 hours): BME courses numbered 2210 and higher (except BME 2860, 3301, 3400 and designated sections of 3890–3893).
   d. Electrical Engineering Core (18 hours): EECE 2112, 2112L, 2123, 2123L, 2214, 3235, 3235L; CS 2201 or 2204.
   e. Electrical and Computer Engineering Electives (18 hours) selected as described by item 6 of the Curriculum Requirements in the Electrical and Computer Engineering section of the catalog, but totaling at least 18 hours. The courses must include:
      - at least 9 hours in one and at least 6 hours in another of the Areas of Concentration listed under

Electrical and Computer Engineering in the Undergraduate Catalog. BME 3302 may be included toward satisfying the Area of Concentration requirement but cannot be counted as an Electrical and Computer Engineering elective.
- at least one Design Domain Expertise course as designated in the catalog.

II. The double major in biomedical and chemical engineering requires a minimum of 131 hours and is described in the chemical engineering section of the catalog under its curriculum requirements.

Business Studies

DIRECTOR Patrick R. Leddin

DIRECTOR OF UNDERGRADUATE STUDIES Joseph J. Rando

PROFESSOR OF THE PRACTICE Gary R. Kimball

ASSOCIATE PROFESSORS OF THE PRACTICE Willis J. Hulings, Patrick R. Leddin, Joseph J. Rando, Garnett H. Slatton

LECTURERS Marcy Binkley, Jonathan Dyke, Gary McClure, Bob Spieth, Leonora Williamson

COURSES OFFERED: BUS, BUSA

The College of Arts and Science offers select courses under the Business Studies Program to help students understand marketing, accounting, entrepreneurship, management, corporate strategy, negotiation, and analytics. These elective courses are offered by the Business Studies program. The program is directed by Professor Patrick R. Leddin, 215 Calhoun Hall, (615)-322-4021.

Chemical Engineering

Mission

Degree Programs

Undergraduate Honors Program

Facilities

Curriculum Requirements

Double Majors

Specimen Curriculum for Chemical Engineering

CHAIR Paul E. Laibinis

DIRECTOR OF GRADUATE PROGRAM Jamey D. Young

DIRECTOR OF GRADUATE RECRUITING G. Kane Jennings

DIRECTOR OF UNDERGRADUATE STUDIES Ethan Lippman

PROFESSORS EMERITI Peter T. Cummings, Thomas R. Harris, M. Douglas LeVan, K. Arthur Overholser, Peter N. Pintauro, Robert J. Roselli, John A. Roth, Robert D. Tanner

PROFESSORS Craig L. Duvall, Todd D. Giorgio, Scott A. Guelcher, G. Kane Jennings, David S. Kosson, Paul E. Laibinis, Matthew J. Lang, Sandra J. Rosenthal, Krishnendu Roy, Florence Sanchez, Jamey D. Young

RESEARCH PROFESSOR Peter T. Cummings, Clare M. McCabe, Peter N. Pintauro

PROFESSOR OF THE PRACTICE Russell F. Dunn

ASSOCIATE PROFESSOR EMERITUS Kenneth A. Debelak

ASSOCIATE PROFESSORS Ivelin Georgiev, Shihong Lin, Ethan S. Lippman, Bridget R. Rogers, John T. Wilson, Marija Zanic

ASSISTANT PROFESSORS Piran Kidambi, Marjan Rafat, Carlos A. Silvera Batista, Zhongyue Yang

ASSISTANT PROFESSOR OF THE PRACTICE Davud C. Florian, Julianne Vernon

RESEARCH ASSISTANT PROFESSORS Karan Arora, Vijay Bharti, Peifu Chang, Clinton Hasenour, Hyosung Kim, Bo Li, Hongiun Liu, Bo Wang

ADJUNCT ASSISTANT PROFESSOR Bryan R. Beyer

COURSES OFFERED: CHBE

Chemical engineers play key roles in the development and production of commodity chemicals, pharmaceuticals, and bioengineered materials, high strength composites and specialty polymers, semiconductors and microelectronic devices, and a wide range of ultrapure fine chemicals. Indeed, chemical engineering is essential for the operation of contemporary society. The solutions to many of the problems that we face today—e.g., energy, the environment, development of high-performance materials—will involve chemical engineers.

The undergraduate program in chemical engineering prepares students to contribute to the solution of these and similar problems. Graduates find meaningful careers in industry, in government laboratories, and as consultants. Some continue their education through graduate studies in chemical engineering, business, law, or medicine.

Mission. The mission of the Department of Chemical and Biomolecular Engineering is to educate those who will advance the knowledge base in chemical engineering, become practicing chemical engineers, and be leaders in the chemical and process industries, academia, and government; to conduct both basic and applied research in chemical engineering and related interdisciplinary areas; and to provide service to the chemical engineering profession, the School of Engineering, Vanderbilt University, the country, and the world.

Degree Programs. The Department of Chemical and Biomolecular Engineering offers the B.E. in chemical engineering and graduate study leading to the M.Eng., M.S., and Ph.D.

Undergraduate chemical engineering students acquire a solid background in mathematics, chemistry, biology, and physics. The chemical and biomolecular engineering program has as its basis courses in transport phenomena, thermodynamics, separations, and kinetics. Other courses deal with the principles and techniques of chemical engineering analysis and design, along with economic analysis, process control, chemical process safety, and engineering ethics. Laboratory courses offer the student an opportunity to make fundamental measurements of momentum, heat, and mass transport and to gain hands-on experience with bench scale and small scale pilot-plant apparatus, which can be computer controlled. Report writing is a principal focus in the laboratory courses. Many students have the opportunity to carry out individual research projects.

A specimen curriculum for a chemical engineering major follows. This standard program includes a number of electives. Students, in consultation with their faculty advisers, may choose elective courses that maintain program breadth or may pursue a minor or focus area with their chemical engineering major. Specimen curricula with emphases in specific areas are available on the department website. Double majors may be arranged in consultation with a faculty adviser.

Students are recommended to take the Fundamentals of Engineering Examination (FE) in their senior year. This is the first step in obtaining a license as a professional engineer. The following courses are recommended for

preparation for the FE: ECE 2112, CE 2200, and ME 2190.

Undergraduate Honors Program. The Honors Program in chemical engineering provides an opportunity for selected students to develop individually through independent study and research. General requirements are described in the Special Programs chapter. The chemical and biomolecular engineering department requires a minimum overall GPA of 3.5. Acceptance to the program is made by petition to the faculty during the junior year. Transfer students may be considered for admission after completing one semester at Vanderbilt. Candidates for honors choose their technical courses with the consent of a faculty honors adviser. Requirements include at least 6 hours of CHBE courses numbered 5000 or above, plus 6 hours of CHBE 3860 and 3861 taken in the junior and/or senior year under the direction of a faculty honors adviser. A formal written research report is submitted each semester CHBE 3860 or 3861 is taken with a final report and presentation given in the spring semester of the senior year to the CHBE faculty and students. The diploma designation is Honors in Chemical Engineering.

Facilities. The chemical and biomolecular engineering department is located in Olin Hall of Engineering. Undergraduate instructional laboratories are equipped for study of transport phenomena, unit operations, kinetics, and process control. Current research areas for which facilities are available include molecular modeling; colloid and surface science; biochemical engineering and biotechnology; materials processing and characterization; energy and the environment.

Curriculum Requirements

The B.E. in chemical engineering requires a minimum of 125 hours, distributed as follows:

1. Mathematics (14 hours): MATH 1300, 1301, 2300, 2420.
2. Basic Science (27 hours): CHEM 1601, 1601L, 1602, 1602L, 2221, 2221L, 2222, 2222L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510 or CHBE 2150.
3. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1100 or 1101 or 1103 or 1104 (CS 1100 or 1103 preferred).
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Chemical and Biomolecular Engineering (39 hours): CHBE 2100, 2200, 2250, 2900W, 3200, 3250, 3300, 3350, 3600, 3900W, 4900W, 4950W, 4951W, 4959.
6. Chemical and Biomolecular Engineering electives: 6 hours selected from CHBE courses numbered 4000 or above and ENVE 4625.
7. Statistics (3 hours): One of DS 2100, BME 2400, CE 3300 or MATH 2810
8. Technical electives (6 hours). To be selected from: a) courses numbered 2000 or above in BME, CHBE, CE, CS, DF, ECE, ENVE, ME, MSE, NANO, and SC, except ME 2220 and any School of Engineering course numbered 2860; b) courses numbered 1500 or above in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution category; and c) ENGM 3000, 3010, 3300, 3650, 3700, 4500. At least 3 hours must be selected from BSCI 2201, 2520; CHEM 3300, 3310; ENVE 4600 or CHBE courses numbered 4000 and above.
9. Open electives (6 hours).

Undergraduates in chemical engineering, including double majors with chemical engineering, may apply the pass/fail option only to courses taken as open electives, subject to the school requirements for pass/fail. No more than 6 total hours of CHBE 3860 and 3861 may be applied toward degree requirements.

Double Majors

I. The double major in chemical engineering and biomedical engineering requires a minimum of 131 semester hours distributed as follows:
    a. Mathematics (15 hours): MATH 1300, 1301, 2300, 2400.
    b. Engineering Fundamentals (6 hours): ES 1401, 1403, 1403; CS 1101 or 1103 or 1104.
    c. Basic Science (28 hours): CHEM 1601, 1601L, 1602, 1602L, 2221, 2221L, 2222, 2222L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510, 1510L.
    d. Chemical and Biomolecular Engineering (29 hours): CHBE 2100, 2200, 3200, 3250, 3300, 3350, 4900W, 4950W, 4951W, 4959.

e. Biomedical Engineering (29 hours): BME 2100, 2301, 2302, 2400, 2900W, 3301, 3302, 3400, 3500, 3900W, 4959.

f. Electrical Engineering (3 hours): ECE 2112.
g. CHBE/BME Elective: 3 hours selected from CHBE 4500, 4800, 4805, 4810, 4820 and BME courses numbered 4000 and above except BME 6110. BME 3890 and CHBE 3890 may be substituted upon approval of the Directors of Undergraduate Studies for BME and CHBE.
h. Liberal Arts Core (18 hours): To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.

II. The double major in chemical engineering and chemistry requires a minimum of 130 semester hours. The requirements include those numbered 1, 2, 3, 4, and 6 for the B.E. in chemical engineering and the following:
a. Chemical and Biomolecular Engineering (36 hours): CHBE 2100, 2200, 2250, 2900W, 3200, 3250, 3300, 3350, 3600, 4900W, 4950W, 4951W, 4959.

b. Science (23 hours): CHEM 2100, 2100L, 3010, 3315; CHEM 3300 or 3310; either CHEM 4965 and 4966 or 6 hours selected from CHEM 3980, 4980, and 4999; BSCI 1510 or CHBE 2150; BSCI 2520.

c. Engineering Elective: 3 hours selected from courses numbered 2000-3800 or 3890 and above in BME, CHBE, CE, CS, EECE, ENVE, and ME, except courses numbered 2860.

Specimen Curriculum for Chemical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
CHEM 2221, 2222	Organic Chemistry	3	3
CHEM 2221L, 2222L	Organic Chemistry Laboratory	1	1
MATH 2300	Multivariable Calculus	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CHBE 2100	Chemical Process Principles	3	–
CHBE 2200	Chemical Engineering Thermodynamics	–	3
CHBE 2250	Modeling and Simulation in Chemical Engineering	–	3
CHBE 2900W	Technical Communications for Chemical Engineers	–	1
	Liberal Arts Core	3	3
		17	17
JUNIOR YEAR			
CHBE 2150	Molecular and Cell Biology for Engineers	3	–
CHBE 3200	Phase Equilibria and Stage-Based Separations	3	–
CHBE 3250	Chemical Reaction Engineering	–	3

CHBE 3300	Fluid Mechanics and Heat Transfer	3	–
CHBE 3350	Mass Transfer and Rate-Based Separations	–	3
CHBE 3900W	Chemical Engineering Laboratory I	–	3
	Chemical and Biomolecular Engineering Elective	–	3
	Statistics Elective: DS 2100, BME 2400, CE 3300, or MATH 2810	3	-
	Liberal Arts Core	3	3
		15	15
SENIOR YEAR			
CHBE 3600	Chemical Process Control	3	–
CHBE 4900W	Chemical Engineering Laboratory II	3	–
CHBE 4950W	Chemical Engineering Process and Product Design	4	–
CHBE 4951W	Chemical Engineering Design Projects	–	3
CHBE 4959	Professional Practice of Safety in Chemical Engineering Design	1	–
	Chemical and Biomolecular Engineering Elective	–	3
	Liberal Arts Core	–	3
	Technical Elective*	3	3
	Open Elective	3	3
		17	15

*At least 3 hours must be selected from BSCI 2201, 2520; CHEM 3300, 3310; ENVE 4600 or CHBE courses numbered 4000 and above.

Specimen curricula for the double majors with biomedical engineering and with chemistry can be found on the department's website.

Chemistry

Program of Concentration in Chemistry

Minor in Chemistry

Honors in Chemistry

Licensure for Teaching

Introductory Courses

CHAIR John A. McLean

DIRECTOR OF UNDERGRADUATE STUDIES Tara D. Todd

DIRECTOR OF GRADUATE STUDIES David E. Cliffel

PROFESSORS EMERITI Darryl J. Bornhop, Robert V. Dilts, Larry C. Hall, Thomas M. Harris, David M. Hercules, B. Andes Hess Jr., Melvin D. Joesten, Charles M. Lukehart, Ned A. Porter, Joel Tellinghuisen

PROFESSORS Brian O. Bachmann, Richard M. Caprioli, Walter J. Chazin, David E. Cliffel, Stephen W. Fesik, Timothy P. Hanusa, Frederick R. Haselton, Jeffrey N. Johnston, Craig W. Lindsley, , Lawrence J. Marnett, Clare McCabe, Hassane S. Mchaourab, John A. McLean, Jens Meiler, Prasad L. Polavarapu, Carmelo J. Rizzo, Sandra J. Rosenthal, Kevin Schey, Michael P. Stone, Gary A. Sulikowski, C. David Weaver, David W. Wright

ADJOINT PROFESSORS Cody Covington, Norma Dunlap, Terry P. Lybrand, Rongson Pongdee, Lidia Smentek

ASSOCIATE PROFESSORS Andrew Link, Janet E. Macdonald, Renã Robinson

ASSISTANT PROFESSORS Lauren E. Buchanan, Lars Plate, Nathan D. Schley, Steven D. Townsend, Allison S. Walker, Zhongyue Yang

ADJOINT ASSISTANT PROFESSORS Glenroy Dean Martin

PRINCIPAL SENIOR LECTURERS Adam K. List, Shawn T. Phillips, Michelle M. Sulikowski, Tara D. Todd

SENIOR LECTURERS Hemant Badgandi, Katherine Clements, Aaron Daniel, Alissa Hare, Craig G. Tainter, Susan Verberne-Sutton

COURSES OFFERED: CHEM

The Department of Chemistry seeks to provide a sound education in the fundamentals of modern chemistry as well as exposure to cutting-edge research and contemporary instrumentation in the field. This is accomplished by providing students with a solid background in the disciplines of organic, analytical, inorganic, biological, and physical chemistry. The core courses in these areas, which are supported by a variety of practical experimental experiences in the laboratory, provide students with the skills needed to think critically about chemistry. After these core courses, students delve deeper into an area of their choice. Recognizing the importance of research, which integrates and makes sense of our collective body of knowledge, we encourage students to participate in undergraduate research. The chemistry major at Vanderbilt University meets the guidelines for the American Chemical Society approved program of study in chemistry.

Program of Concentration in Chemistry

The chemistry program is organized into four parts. The first part is a general chemistry course sequence (CHEM 1601–1602 and 1601L–1602L or AP credit) to serve as an entry point into the major. The second part consists of foundation courses in the five major disciplines of chemistry: analytical (2100), biochemistry (BSCI 2520), inorganic (3010), organic (2221–2222 or 2211–2212), and physical (3300 or 3310). The third part of the chemistry major consists of completing 8 credit hours of laboratory past 1601L–1602L. Four credit hours are from laboratory courses (2221L–2222L, 2100L, and 3315) associated with foundation courses. There are also 6 credit hours of a capstone laboratory (4965–4966) designed to provide advanced laboratory experience. The fourth part of the major consists of completing a minimum of 6 credit hours of in-depth chemistry courses. These in-depth courses build upon the content of foundation courses or integrate concepts from these foundational disciplines.

Required Non-chemistry Courses

One year of calculus (MATH 1300-1301 is preferred)

PHYS: Both 1501–1502 and 1501L–1502L, or both 1601–1602 and 1601L–1602L, or 1901–1902

Required Chemistry Courses	Cr. Hrs. toward major
Chem 1601–1602 & 1601L–1602L or AP credit	0
Chem 2221–2222 (or 2211–2212) & 2221L–2222L	8
Chem 2100 & 2100L	4
Chem 3300 or 3310	3
Chem 3315	1
BSCI 2520	3
Chem 3010	3
*Two in-depth chemistry courses	6
Chem 4965–4966	6
Minimum Credit Hours for Chemistry Major	34

* In-depth chemistry courses include all 2000-level chemistry and higher courses not explicitly required, except for CHEM 3600 and 3980–4980–4999. Other in-depth chemistry courses are Chemical and Biomolecular Engineering 3200 and 3250, and Earth and Environmental Sciences 4600, and any 5000-level chemistry lecture courses. (Qualified seniors interested in graduate-level courses must obtain approval from the course instructor, their adviser, and the director of graduate studies in chemistry. Further details are found in the Academic Policies for the College of Arts and Science.) A maximum of 3 credit hours of chemistry research (3860) may be counted as in-depth chemistry course hours.

Additional math courses, such as Math 2300 and Math 2820, are highly recommended for the chemistry major.

Options for Concentration in Chemistry

In-depth chemistry courses can be chosen so as to define a focus area within chemistry. Students should consult with their major adviser about focus area options, or to formulate an individualized focus area option. Further descriptions of these options and other recommended courses can be found in the chemistry major handbook on the chemistry department homepage.

Chemical Biology Focus. The role of chemical processes in biological systems is fundamental to chemical biology. The journal *Nature Chemical Biology* defines chemical biology as “the use of chemistry to advance a molecular understanding of biology and the harnessing of biology to advance chemistry.” Chemical biology builds upon the disciplines of medicinal chemistry, biochemistry, pharmacology, genetics, bioorganic and organic chemistry. Suggested in-depth chemistry electives: 3020, 3710, 3860, 4210, 4720.

Chemical Sciences Focus. This option provides a broad foundation of chemistry, permitting flexibility in future career pathways and providing an excellent preparation for positions in chemical industry and for graduate programs in chemistry. Suggested in-depth chemistry electives: 3120, 3300, 3310, 3860.

Environmental Chemistry Focus. Environmental chemistry concerns the chemical phenomena that occur in nature. Environmental chemistry spans atmospheric, aquatic, and soil chemistry with a reliance on analytical chemistry for methods of analysis. Environmental chemistry can be applied to the understanding of issues such as ground water pollution, wastewater treatment, ozone depletion, and greenhouse gas emissions. Suggested in-depth chemistry

electives: 3120, 3300, 3310, 3860, EES 4600.

Materials Chemistry Focus. Materials chemistry is concerned with designing and synthesizing new materials with specific useful properties and determining the relationships between physical properties and the composition and structure of these new materials. Materials chemistry encompasses all size regimes from bulk to nanoscale. Synthetic chemistry (inorganic and organic), physical chemistry, and analytical chemistry are all important components of this field. Suggested in-depth chemistry electives: 3120, 3630, 2610, 3310, 2610, 3860, 5320, 5610, 5620.

Minor in Chemistry

The minor in chemistry requires 18 credit hours of course work, including 4 credit hours from 1602 and 1602L or AP credit, and 14 credit hours selected from any of the courses acceptable for the major in chemistry.

Honors in Chemistry

Students with an overall GPA of at least 3.3 and a GPA of at least 3.4 in chemistry courses at the start of their junior year wishing to do honors will register for the honors research courses (CHEM 3980, 4980, 4999) beginning spring semester junior year. The CHEM 4965 and 4966 requirements are waived in lieu of the CHEM 3980, 4980, and 4999 registrations. Honors candidates must present a thesis on the research done under CHEM 3980, 4980, and 4999 and pass an oral examination. Additional information may be found in the chapter on Special Programs in the College.

Licensure for Teaching

Candidates for teacher licensure in chemistry at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog. One semester of the CHEM 4965–4966 sequence will be considered fulfilled by completing the Peabody student teaching requirements.

Introductory Courses

Introductory chemistry is offered in two different sequences, each with its own laboratory. Only one set of these courses may be taken for credit.

1. *Chemistry 1010, 1010L.* Intended for liberal arts students who are not planning to take any additional chemistry courses. It treats chemistry in a nonmathematical fashion, with some historical and philosophical features. Not for science and engineering students.
2. *Chemistry 1601–1602.* Designed for engineering, science, and premedical students. This course, which must be taken simultaneously with 1601L–1602L, serves as preparation for students intending to major in chemistry, biology, physics, or earth and environmental sciences. It is a more rigorous, mathematical approach to chemistry and a prerequisite for organic and other chemistry courses. It is not intended for liberal arts students taking a science course only to fulfill AXLE requirements.

Civil Engineering

Specimen Curriculum for Civil Engineering

Pre-Architecture Advising

Minor in Environmental Engineering

Minor in Energy and Environmental Systems

CHAIR Caglar Oskay

ASSOCIATE CHAIR Hiba Baroud

DIRECTORS OF GRADUATE STUDIES Daniel B. Work (Civil Engineering), Florence Sanchez (Environmental Engineering)

DIRECTORS OF GRADUATE RECRUITING Hiba Baroud (Civil Engineering), Shihong Lin (Environmental Engineering)

DIRECTOR OF UNDERGRADUATE STUDIES Lori A. Troxel

PROFESSORS EMERITI Prodyot K. Basu, George M. Hornberger, Richard E. Speece, Robert E. Stammer, Jr., Edward L. Thackston

PROFESSORS Mark D. Abkowitz, Douglas E. Adams, John Ayers, David J. Furbish, David S. Kosson, Eugene J. Leboeuf, Sankaran Mahadevan, Caglar Oskay, Florence Sanchez, Matthew Weinger, Daniel B. Work

PROFESSORS OF THE PRACTICE Curtis D. Byers, Sanjiv Gokhale, Steven L. Krahn, Lori A. Troxel

RESEARCH PROFESSORS Janey S. Camp, Craig E. Philip

ADJUNCT RESEARCH PROFESSOR Jesus Gomez Velez

ASSOCIATE PROFESSORS Hiba Baroud, Alan R. Bowers, Ravindra Duddu, Jonathan Gilligan, Shihong Lin, Jonathan Sprinkle, Ahmad Taha

RESEARCH ASSOCIATE PROFESSORS Kevin G. Brown, Andrew G. Garrabrants

ASSISTANT PROFESSOR OF THE PRACTICE Ghina Absi

RESEARCH ASSISTANT PROFESSORS Leah Dundon, Chen Gruber, Pranav Karve

ADJUNCT PROFESSORS Gregory L. Cashion, Allen G. Croff, James P. Dobbins, Andrea George, Boualem Hadjerioua, Ofra Klein-BenDavid, Janette Meyers, Vic L. McConnell L. Hampton Turner IV, Hans A. Van der Sloot, Raymond G. Wymer

ADJUNCT INSTRUCTORS David Livingston, Keith Loiseau, Heather Smith, Bryan Tharpe, Hannah Walter, Adrian Ward

LECTURER Phillip Collins

COURSES OFFERED: CE

Vanderbilt's Department of Civil and Environmental Engineering offers a broad-based education in civil and environmental engineering fundamentals, coupled with development of leadership, management, and communications skills to establish a foundation for lifelong learning and flexible career development. This goal requires going beyond technical competence in a balanced education to develop future leaders in the fields of consulting, industry, business, law, government, and research. Civil engineers must be able to face complex problems of modern society involving the development of physical facilities that serve the public while protecting the environment and preserving social values. Challenges facing civil and environmental engineers concern housing, urban transportation, pollution control, water resources development, industrial development, maintaining and advancing our nation’s aging infrastructure, and exploring space. Addressing these challenges with today’s limited resources requires innovative and original ideas from highly-skilled engineers.

Undergraduates majoring in civil engineering receive a strong background in mathematics, science, engineering science, and engineering design. The program also includes courses in economics, humanities, social sciences, resources management, and public policy. Students participate in design teams and laboratory studies as well as classroom activities. Use of various computer-based methods is integral to problem solving and design.

Degree Programs. At the undergraduate level, the Department of Civil and Environmental Engineering offers the B.E. in civil engineering. The curriculum includes upper-level analysis and design courses in structural, geotechnical, environmental, water resources, and transportation engineering. In addition, a major in chemical engineering with a minor in environmental engineering is available.

Vanderbilt's B.E. in civil engineering prepares students for entry-level positions in many specialty areas of civil engineering, as well as many other types of careers, such as business, construction, and law. Today, however, and even more so in the future, professional practice at a high level will require an advanced degree. We recommend that students seriously consider pursuing the M.S. or M. Eng. soon after obtaining the B.E.

At the graduate level, the department educates leaders in infrastructure and environmental engineering research and practice, with emphasis on the use of reliability and risk management. Reliability and risk management includes engineering design, uncertainty analysis, construction and repair, life-cycle and cost-benefit analysis, information management, and fundamental phenomena intrinsic to the understanding of advanced infrastructure and environmental systems. Example applications include performance, reliability and safety of structures, restoration of contaminated sites, transportation control systems, management of environmental resources, and enhancement of the eco-compatibility of industry. Development and application of advanced information systems as applied to civil and environmental engineering needs is an important part of the program.

The graduate program in civil engineering offers the M.S. and Ph.D., with emphasis in the areas of structural engineering and mechanics and transportation engineering.

The graduate program in environmental engineering offers the M.S. and Ph.D. in the areas of environmental engineering and environmental science, with emphasis in water resources, quality, and treatment; resilience and sustainability; nuclear environmental engineering; and environmental materials and materials durability. Both thesis and non-thesis options are available at the M.S. level.

The graduate programs in both civil engineering and environmental engineering also offer the master of engineering (M.Eng.), an advanced professional degree especially designed for practicing engineers wanting to pursue post-baccalaureate study on a part-time basis, and for engineers seeking greater emphasis on engineering design as part of graduate education.

B.E./M.Eng. Five Year Program. Students seeking advanced study in civil and environmental engineering may be interested in the combined B.E./M.Eng., enabling students to complete the B.E. in civil engineering and M.Eng. in civil engineering or environmental engineering in five years.

Construction Management Five Year Program. Students seeking advanced study in construction management may be interested in the combined B.E./M.Eng., enabling students to complete the B.E. in civil engineering and M.Eng. in civil engineering (construction management emphasis) in five years.

Undergraduate Honors Program. Recognized with the diploma designation Honors in Civil Engineering, exceptional students may be invited in their junior year to participate in the civil engineering Honors Program. Designed as a

unique individualized educational experience, participants work closely with departmental faculty members to tailor a selection of courses that actively immerses them in a selected field of study. Experiences include enrollment in a 3 semester hour independent study course and participation in a summer research internship. Honors Program participants are especially well-prepared to enter graduate study, and they may count the independent study course towards their civil engineering technical electives.

Facilities. The civil engineering laboratory provides for static and dynamic testing of materials and structural components and assemblies. Testing facilities include capabilities of testing composites, metals, and concrete under static loads, fatigue, base acceleration (to simulate seismic events) and intermediate to high speed impacts (to simulate responses to blast events). Full soils testing facilities are available. Hydraulics facilities include several model flow systems to illustrate principles of fluid mechanics and hydrology. The transportation laboratory is computer-based, with emphasis on transportation systems and design, intelligent transportation systems, and geographic information systems.

The environmental laboratories are fully supplied with modern instrumentation for chemical, physical, biological, and radiological analysis of soils, sediments, water, wastewater, air, and solid waste. They include equipment for the study of biological waste treatment, physical-chemical waste treatment, contaminant mass transfer, and state-of-the-art instrumentation for gas and liquid chromatography, mass spectroscopy, atomic absorption spectroscopy, gamma spectroscopy, inductively coupled plasma mass spectroscopy, gas adsorption (for pore structure determination), thermal mechanical analysis, modulated scanning differential calorimetry, and simultaneous thermal gravimetric analysis differential scanning calorimetry/mass spectroscopy. All are available for student use in courses, demonstrations, and research.

Curriculum Requirements

The B.E. in civil engineering requires a minimum of 125 hours, distributed as follows:

1. Mathematics (14 hours). Required courses: MATH 1300, 1301, 2300, 2420.
2. Basic science (12 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L.
3. Basic science elective (4 hours). To be selected from: BSCI courses numbered 1510 and 1510L and above; and EES 1030 and 1030L, 1081 and 1081L, 1510 and 1510L.
4. Computing (3 hours). Required course: CS 1100 or 1101 or 1103 or 1104.
5. Engineering Fundamentals (26 hours). Required courses: ES 1401, 1402, 1403; CE 2101, 2200, 2205, 3700, 3700L; ENGM 2160; ME 2190; MSE 2205; ME 2220 or CHBE 2200 (students with interests in Environmental and Infrastructure Sustainability Engineering are encouraged to enroll in CHBE 2200).
6. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
7. Open electives (6 hours).
8. Technical electives (3 hours). To be selected from: (a) courses in BME, CHBE, CE, ENVE, ECE, ME, MSE (except any course numbered 2860 and MSE 3860, 3889, 3890) (b) ENGM 3000, 3010, 3200, 3650 (except BME 2860 and MSE 3860, 3889, 3890); (c) all courses acceptable as science electives as indicated above; (d) CHEM 1602 and above; (e) PHYS courses above 2000 (astronomy not accepted); and (f) MATH 2410 or 2600, and courses 2811 and above (except 3000); (g) all CS courses 2000 and above (except 2860 4959); and (h) DS 3100, 3262. Students with an interest in Structural Engineering are encouraged to take MATH 2410 or 2600 as their technical elective.
9. Civil Engineering Core (27 hours). Required courses: CE 2120, 3100W, 3200, 3205, 3300, 3501, 3705, 4400, 4950, 4951, and 4959.
10. Civil Engineering Program Electives (6 hours). To be selected from: CE 3250, 3600, 4150, 4250; ENVE 4610, 4615, 4625, 4800.
11. Civil Engineering Design Electives (6 hours). To be selected from: CE 4150, 4200, 4210, 4240, 4250, 4425, 4430, 4500, 4505, 4510; ENVE 4305, 4610, 4625, 4710.

Students may use CE program electives, CE design electives, technical electives, and open electives to gain additional depth and expertise. Students with interests in structural engineering are recommended to take electives such as CE 3250, 4200, 4210, 4211, 4250, 4300, ENVE 4305, and ME 4259, 4275. Students interested in environmental and infrastructure sustainability engineering are recommended to take electives such as CE 3600, 4100, 4150, 4240, 4300, ENVE 4305, 4600, 4605, 4610, 4615, 4620, 4700, 4705, 4707, 4710, 4715, 4716, and 4720. Specific courses selections should be discussed with their academic adviser. Students desiring advanced topic coverage should also consider 5000- level courses, with approval of their adviser.

Undergraduates in civil engineering may apply the pass/fail option only to courses taken as liberal arts core or open electives, subject to the school requirements for pass/fail.

Specimen Curriculum for Civil Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
MATH 2300	Multivariable Calculus	3	–
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CE 2101	Civil and Environmental Engineering Information Systems	3	–
CE 2120	Sustainable Design in Civil Engineering	3	–
CE 2200	Statics	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
CE 2205	Mechanics of Materials	–	3
CE 3501	Transportation Systems Engineering	–	3
ME 2190	Dynamics	–	3
	Thermodynamics (ME 2220 or CHBE 2200)	–	3
	Liberal Arts Core	–	3
		16	18
JUNIOR YEAR			
CE 3200	Structural Analysis	3	–
CE 3700, 3700L	Fluid Mechanics and Laboratory	4	–
MSE 2205	Strength and Structure of Engineering Materials	1	–
	CE Program Elective	3	–
	Elective*	3	–
	Liberal Arts Core	3	3
CE 3100W	Civil and Environmental Engineering Laboratory	–	2
CE 3205	Structural Design	–	3
CE 3300	Risk, Reliability, and Resilience Engineering	–	3
CE 3705	Water Resources Engineering	–	3
ENGM 2160	Engineering Economy	–	3
		17	17
SENIOR YEAR			
CE 4400	Construction Project Management	3	–
CE 4950	Civil Engineering Design I	1	–
CE 4959	Senior Engineering Design Seminar	1	–
	CE Design Elective	3	3
	Elective*	3	3
	Liberal Arts Core	3	3
CE 4951	Civil Engineering Design II	–	2
	Open Elective	–	3
		14	14

*To be selected toward satisfying the following degree requirements: 6 hours of Program Electives, 3 hours of Technical Electives, and 6 hours of Open Electives.

Pre-Architecture Advising

Civil engineering students interested in pursuing architecture at the graduate level should include courses that emphasize a broad sense of art and architectural history, including courses in studio art. Before applying to graduate programs, students will need to develop a portfolio of creative work that generally includes drawing, prints, sculpture, photographs, and creative writing. Further information is available at: as.vanderbilt.edu/paa/.

Minor in Environmental Engineering

A minor in environmental engineering is available to all non-civil engineering students. It requires a total of 15 hours of environmental engineering courses, comprising 6 hours of required courses and 9 hours of electives, chosen from the following list:

Required Courses (6 hours)

CE 3600 – Environmental Engineering

ENVE 4600 – Environmental Chemistry

Elective Courses (9 hours)

CE 3705 – Water Resources Engineering

CE 4100 – Geographic Information Systems

ENVE 4305 – Enterprise Risk Management

ENVE 4605 – Environmental Thermodynamics, Kinetics, and Mass Transfer

ENVE 4610 – Biological Processes in Environmental Systems

ENVE 4615 – Environmental Assessments

ENVE 4620 – Environmental Characterization and Analysis

ENVE 4625 – Environmental Separations Processes

ENVE 4700 – Energy and Water Resources

ENVE 4705 – Physical Hydrology

ENVE 4710 – Hydrology

ENVE 4715 – Groundwater Hydrology

ENVE 4720 – Surface Water Quality Modeling

ENVE 4800 – Nuclear Environmental Engineering

Minor in Energy and Environmental Systems

The minor in energy and environmental systems is designed to provide students with a working knowledge of the fundamentals of energy systems and their impact on the environment. The future health and well-being of humanity hinge in large part on smart production and use of energy, water, and related resources, as these are central determinants of climate change, habitable space, and human and ecological health. This program examines the relationships among individual, institutional, and societal choices for energy production and use, and the impacts and benefits of these choices on the environment and health through climate, water quality, and natural resources. It requires a total of 15 semester hours of course work, some of which may be taken as electives associated with the

student's major program. Five courses are required: two core courses and three elective courses taken from at least 2 areas (at least one course from each of two areas): Area I: Energy Systems, Area II: Environmental Engineering, and Area III: Environmental Survey.

Required Courses (6 hours)

ENVE 4615 – Environmental Assessments

CE 4150 – Energy Systems Engineering

Elective Courses (9 hours)

Area I: Energy Systems

ECE 4267 – Power System Analysis

ME 3890 – Special Topics: Nuclear Power

ME 4260 – Energy Conversion I

ME 4264 – Internal Combustion Engines

ME 4265 – Direct Energy Conversion

Area II: Environmental Engineering

CE 3600 – Environmental Engineering

CE 3705 – Water Resources Engineering

ENVE 4305 – Enterprise Risk Management

ENVE 4605 – Environmental Thermodynamics, Kinetics, and Mass Transfer

ENVE 4620 – Environmental Characterization and Analysis

ENVE 4710 – Hydrology

ENVE 4800 – Nuclear Environmental Engineering

ME 4262 – Environmental Control

Area III: Environmental Survey

ANTH 4154 – Energy, Environment, and Culture

CE 4100 – Geographic Information Systems

CE 4430 – High Performance and Green Buildings

EES 1080 – Earth and the Atmosphere

EES 2110 – Introduction to Climate Change

PHIL 3611 – Environmental Philosophy

SOC 3315 – Human Ecology and Society

Cinema and Media Arts

Program of Concentration in Cinema and Media Arts

Honors Program

Minor in Cinema and Media Arts

CHAIR Claire Sisco King

ASSOCIATE CHAIR Jonathan Waters

DIRECTOR OF UNDERGRADUATE STUDIES Jonathan Rattner

PROFESSORS Jay Clayton, Jennifer Fay, Lutz Koepnick

ASSOCIATE PROFESSORS Claire Sisco King, James McFarland, Andrea Mirabile, Jonathan Rattner

ASSISTANT PROFESSORS Cesar Ignacio Ruiz Cortez, Carmine Grimaldi

PRINCIPLE SENIOR LECTURERS Jonathan Waters

SENIOR LECTURERS Madeleine Casad

WRITER IN RESIDENCE Krista Knight

Affiliated Faculty

PROFESSORS Joy Calico (Music), Colin Dayan (English), Gerald Figal (History), Phillip Franck (Theatre), Jay Geller (Divinity School), Yoshikuni Igarashi (History), Daniel Levin (Psychology, Peabody), Kelly Oliver (Philosophy), Lynn T. Ramey (French), T. Sharpley-Whiting (African American and Diaspora Studies and French), Benigno Trigo,(Spanish), Mark A. Wollaeger (English)

ASSOCIATE PROFESSORS Vanessa Beasley (Communication Studies), Scott Juengel (English), Stanley Link (Music), Peter Lorge (History), Letizia Modena (French and Italian), Emanuelle Oliveira (Portuguese), Vesna Pavlovic (Art), Anand Taneja (Religious Studies)

ASSISTANT PROFESSOR Alex Dubilet (English)

LECTURER Jonathan Warren, Megan Minarich

COURSES OFFERED: CMA

Cinema and Media Arts offers an interdisciplinary major and minor that combine the practice of filmmaking with the study of film and media theory and history. Emphasizing cinema as both a modern aesthetic form and a hands-on cultural practice, the program trains students for careers in film and media production, communications, academic media studies, and community and social relations. The program encourages new ways of thinking, looking, and making in keeping with the ever-changing world of modern media. A core curriculum is composed of film and media theory, history, and filmmaking. The major concludes with a capstone senior seminar.

Program of Concentration in Cinema and Media Arts

The CMA major consists of 33 credit hours, balanced between production and studies courses. This structure provides a broad foundation of knowledge and skills as students consider their career options. The requirements are as follows:

FOUNDATIONS (6 credit hours)

1500: Fundamentals of Film and Video Production

1600: Introduction to Film and Media Studies

CORE REQUIREMENTS (12 credit hours): Students must take two courses from among the following: 2240, 2250, 2260, 2270, and 2290; and two courses from among the following: 2300, 2301, 2302, 2370, and 2400.

2240: Narrative Filmmaking

2250: 16mm Filmmaking

2260: Digital Production Workshop

2270: Documentary Filmmaking

2290: Alternate Media Modes

2300: Film and Media Theory

2301: Race in Film and Media

2302: Global Queer Cinema

2370: Film and Media Aesthetics

2400: History of World Cinema

ELECTIVES (12 credit hours): Students must take four additional CMA courses or cross-listed courses, including ones in the Core category (that are not being used to satisfy the Core category requirement) and Special Topics courses.

SENIOR SEMINAR (3 credit hours): All seniors must take either 4961 or 4962.

Honors Program

The Honors Program in Cinema and Media Arts offers excelling students the opportunity to undertake a high-level independent research and/or creative project during their senior year. Projects must be rigorous and demonstrate a student’s ability to sustain an argument, an aesthetic principle, or a narrative arc in a substantial form. For admission to the Honors Program, students must have and maintain until graduation a cumulative grade point average of 3.3 and a grade point average of 3.5 in courses counting toward the major. The student must submit an application to the program director outlining the thesis topic. In addition to completing the major requirements listed above, during the senior year the student is required to register for Cinema and Media Arts 4998 (3 credit hours) and 4999 (3 credit hours) in order to complete the thesis. An oral examination on the thesis and its area is to be completed during the final semester of undergraduate study.

Minor in Cinema and Media Arts

The minor consists of 18 credit hours balanced between production and studies courses. The requirements are as follows:

FOUNDATIONS (6 credit hours)

1500: Fundamentals of Film and Video Production

1600: Introduction to Film and Media Studies

CORE REQUIREMENTS (6 credit hours): Students must take one course from among the following 2240, 2250, 2260, 2270, and 2290; and one course from among the following: 2300, 2301, 2302, 2370, and 2400.

2240: Narrative Filmmaking

2250: 16mm Filmmaking

2260: Digital Production Workshop

2270: Documentary Filmmaking

2290: Alternate Media Modes

2300: Film and Media Theory

2301: Race in Film and Media

2302: Global Queer Cinema

2370: Film and Media Aesthetics

2400: History of World Cinema

ELECTIVES (6 credit hours): Students must take two additional CMA courses or cross-listed courses, including ones in the Core category (that are not being used to satisfy the Core category requirement) and Special Topics courses.

Classical and Mediterranean Studies

Program of Concentration in Classical and Mediterranean Studies

Honors Program

Minor in Mediterranean Archaeology

Minor in Mediterranean Studies

Approved List of Courses

INTERIM CHAIR Kevin D. Murphy

CHAIR Phillip I. Lieberman

DIRECTOR OF UNDERGRADUATE STUDIES Daniel P. Solomon

PROFESSORS EMERITI Robert Drews, Susan Ford Wiltshire

PROFESSORS William P. Caferro

ASSOCIATE PROFESSORS Philip I. Lieberman, Jelena V. Bogdanovic, Ari Z. Bryen, Kathy L. Gaca, David A. Michelson, Joseph L. Rife

ASSISTANT PROFESSOR James L. Zainaldin

PRINCIPAL SENIOR LECTURER Daniel P. Solomon

SENIOR LECTURERS Jason R. Harris, Isabella Reinhardt, Chiara Sulprizio

Affiliated Faculty

PROFESSORS Thomas A. McGinn (History), Choon-Leong Seow (Divinity), David Wasserstein (Jewish Studies and History)

ASSOCIATE PROFESSORS Scott F. Aikin (Philosophy), Betsey Robinson (History of Art and Architecture)

ASSISTANT PROFESSOR OF THE PRACTICE Elsa Filosa (French and Italian)

COURSES OFFERED: ARAM, CLAS, CHEB, GRK, LAT

The Department of Classical and Mediterranean Studies offers students an interdisciplinary perspective on the culture and history of a region at the crossroads of human civilization since antiquity. The study of the Mediterranean world examines the influential achievements and legacy of the Greeks and Romans alongside the emergence and spread of Judaism, Christianity, and Islam to the East. It also explores the premodern to modern development of southern Europe, North Africa, and western Asia, which have variously responded to the ancient and medieval past. The program offers courses in the history, religion, philosophy, art, literature, society, and culture of the Mediterranean world. In teaching and research, the faculty promote the integrated study of past and present through both written and material sources—textual, artifactual, visual, spatial—and they embrace analytical techniques in the digital humanities. Students thus have the opportunity to learn several ancient and medieval languages of Europe and the Middle East and to pursue experiential learning overseas, from intensive modern language study to archaeological fieldwork to the investigation of evolving cultural and natural landscapes.

Majors in classical and Mediterranean studies are introduced to the distinctive geography and history of the region but choose their courses in one of three tracks. These tracks have shared content but offer different viewpoints and training. Majors who expect to apply for graduate study should work closely with an adviser to devise an appropriate curriculum.

Students who pursue Classical and Near Eastern Languages and Cultures investigate one or more ancient to medieval cultural tradition(s) in the Greco-Roman and Near Eastern spheres through the study of original texts and their historical setting, such as Greek tragedy, Latin oratory, Hebrew scripture, the Qur’an, or early French romance.

Students who pursue Mediterranean Archaeology explore human diversity and experience from Classical Antiquity to the Middle Ages through the study of material and visual culture. They too learn to read textual sources while acquiring the skills of archaeological and art-historical research.

Students who pursue Mediterranean Studies, the most flexible track for a broad range of interests, can choose to engage with a variety of ancient, medieval, or modern topics through focused or comparative study.

The Department of Classical and Mediterranean Studies also offers a minor in Mediterranean Archaeology and a minor in Mediterranean Studies. A student cannot earn more than one minor in the program.

The Honors Program requires the production of a thesis representing advanced, original, and substantial research.

Students are strongly recommended to pursue study abroad in the Mediterranean or an adjacent region. The department has long supported the Intercollegiate Center for Classical Studies, the American Academy in Rome, and the American School of Classical Studies in Athens. Many different international experiences are possible through Vanderbilt-approved semester programs, Maymesters, research projects, and summer study, for example, in Italy, Greece, and Israel. Students are encouraged to participate in local and regional conferences, where they can share the results of collaborative or independent work. Those concentrating on Greek and/or Latin language who qualify academically are invited to join Eta Sigma Phi, the national classics honor society.

Program of Concentration in Classical and Mediterranean Studies

Students majoring in Classical and Mediterranean Studies must take ten courses, including one foundation course (CLAS 1010). The major is arranged into three tracks and an honors track. Students must formally declare a track 1–3 at the time the major is declared. A score of 4 or 5 on the AP Latin exam earns 3 hours of credit for Latin 2202, which may be applied toward any of the major tracks. Any course for which a student has earned credit will count for one and only one of the requirements or sub-requirements for any of the major tracks or minors.

Track 1: Classical and Near Eastern Languages and Cultures

30–34 total credit hours including:

1. One foundation course: CLAS 1010 (3 credit hours);
2. Language/Literature: Five courses from Course List A (15 credit hours, or 19 credit hours if including ARA 1101– 1102);
3. Culture: Four courses from Course Lists B–D numbered 2060 or above (12 credit hours).

Latin courses at the 1000 level do not count toward this major track. Students who fulfill their language/literature requirement (#2 above) by completing courses in one language must, in consultation with the director of undergraduate studies, earn credit for at least one course in a different cultural tradition (e.g., Greek, Roman, Jewish, Christian, Islamic) or period (e.g., ancient, medieval).

Track 2: Mediterranean Archaeology

30–34 total credit hours including:

1. Two foundation courses: CLAS 1010 and 1020 (6 credit hours);
2. Language/Literature: Two courses from Course List A (6 credit hours, or 10 if including ARA 1101–1102);
3. Method and Theory: One course from Course List E (3 credit hours);
4. Three courses in the history and in the art, architecture, and archaeology of the ancient to medieval Mediterranean world, including one from Course List B, one from Course List C, and one from Course List B or C (9 credit hours);
5. Electives: Two courses from Course Lists A–E or from the following (6 credit hours):

ANTHROPOLOGY: 1101, Introduction to Anthropology; 1201, Introduction to Archaeology; 1301, Introduction to Biological Anthropology; 1601, Introduction to Language and Culture; 2211, Archaeology; 2220, Human Landscapes; 2227, Food in the Ancient World; 2370, Death and the Body; 3160, Anthropologies and Archaeologies of Community; 3161, Colonial Encounter in the Americas; 3200, Ancient Cities; 3202, The Collapse of Civilizations.

With the permission of the director of undergraduate studies, students may fulfill the method and theory requirement (#3 above) by completing a program of practical archaeology (e.g., CLAS 3700, 3710, 3720, 3730, ANTH 3866, participation in an excavation or field survey, an internship in conservation or curation). No more than 15 credit hours of courses numbered below 2050 may count toward this major track.

Track 3: Mediterranean Studies

30 total credit hours including:

1. One foundation course: CLAS 1010 (3 credit hours)
2. Historical basis: Four courses from Course Lists A–D (12 credit hours);
3. Comparative perspectives: Five courses from Course Lists A–F (15 credit hours).

Students may apply up to three semesters of one Mediterranean language toward the historical basis requirement of this major track, including either an ancient to medieval language in Course List A or Catalan, French, Italian, Portuguese, or Spanish. French, Italian, Latin, and Spanish courses at the 1000 level do not count toward the major. No more than 12 credit hours of courses numbered below 2050 may count toward this major track.

Honors Program

The Honors Program in Classical and Mediterranean Studies offers students a more intensive concentration in their main field.

Candidates should signal their interest to the director of undergraduate studies by the beginning of the second semester of the junior year.

Admission requirements are:

1. A cumulative GPA of 3.3, and a GPA of 3.5 in courses that count toward the major.
2. Approval by the faculty of a 2-3 page thesis proposal, due by the middle of the second semester of the junior year.

In addition to maintaining the stated GPA throughout the senior year, Honors students must complete CLAS 4998 and 4999 for 3 credit hours each in addition to the 30-34 credit hours required by the major, culminating in a written thesis that is defended orally. A committee of three faculty members (two of whom must hold sole or joint appointments in the Program in Classical and Mediterranean Studies) will evaluate the thesis and the oral defense.

Minor in Mediterranean Archaeology

Students are required to complete CLAS 1010, 1020, and 12 additional credit hours in courses that count toward Track 2 of the concentration, of which at least 9 credit hours must be from courses numbered 2060 or above.

Minor in Mediterranean Studies

Students are required to complete CLAS 1010 and 15 additional credit hours in courses that count toward Track 3 of the concentration, of which at least 9 credit hours must be from courses numbered 2060 or above.

Approved List of Courses

Ancient to Medieval Mediterranean Languages and Literatures

CLASSICAL HEBREW: 1101, Beginning Classical Hebrew I; 1102, Beginning Classical Hebrew II; 2200, Intermediate Classical Hebrew; 3010, Historical Hebrew Grammar; 3020, Classical Hebrew Poetry; 3030, West Semitic Inscriptions.

GREEK: 1101, Beginning Greek I; 1102, Beginning Greek II; 2201, Intermediate Greek I: Classical and Koiné Greek; 2202, Intermediate Greek II: Homer's *Iliad;* 3010, The Greek Orators; 3020, The Greek Historians; 3040, Readings in Plato and Aristotle; 3100, The Greek Tragedians; 3110, Greek Lyric Poetry; 3200, Early Christian Writers; 3850, Independent Study; 3890, Special Topics in Greek Literature.

LATIN: 1101, Beginning Latin I; 1102, Beginning Latin II; 1103, Intensive Elementary Latin; 2201, Intermediate Latin I; 2202, Intermediate Latin II; 3010, The Writings of Caesar; 3020, Cicero and the Humanistic Tradition; 3030, Latin Letters; 3040, The Roman Historians; 3050, Suetonius; 3060, Tacitus; 3070, Sallust; 3100, Roman Comedy; 3110, Catullus; 3120, Lucretius: *De Rerum Natura;* 3130, Vergil: *The Aeneid;* 3140, The Lyric Poetry of Horace; 3150, Latin Elegy; 3160, Ovid; 3170, Roman Satire; 3180, Neronian Writers; 3200, Early Christian Writers; 3300, Ancient Conspiracy - Theory and Practice; 3850, Independent Study; 3890, Special Topics in Latin Literature.

ARABIC: ARA 1101, Elementary Arabic I; 1102, Elementary Arabic II; 2201, Intermediate Arabic I; 3301, Arabic of the Qur'an and Other Classical Texts; RLST 4593, Advanced Readings in Islamic Tradition.

UGARITIC: CHEB 2300, Ugaritic.

ARAMAIC AND CLASSICAL SYRIAC: ARAM 2400, Introduction to Classical Syriac; 2500, Egyptian Aramaic; CHEB 3030, West Semitic Inscriptions.

AKKADIAN: CLAS 3300, Elementary Akkadian I; 3301, Elementary Akkadian II.

MEDIEVAL TO RENAISSANCE ITALIAN: ITAL 3100, Literature from the Middle Ages to the Renaissance; 3242, Dante in Historical Context; 3340, *Famous Women* by Boccaccio.

OLD SPANISH: SPAN 4400, Origins of Spanish Literature.

Ancient to Medieval Mediterranean History

CLASSICAL AND MEDITERRANEAN STUDIES: 2100, History of the Ancient Near East; 2110, History of Greece to Alexander the Great; 2120, Greece and the Near East from Alexander to Constantine; 2150, History of the Roman Republic; 2160, History of the Roman Empire; 2180, The Mediterranean World from Late Antiquity to the Middle Ages.

HISTORY: 1190, A History of Islam; 1350, Western Civilization to 1700; 1600, European Economic History 1000–1700; 2220, Medieval and

Renaissance Italy, 1000–1700; 2230, Medieval Europe, 1000–1350.

Ancient to Medieval Mediterranean Art, Architecture, and Archaeology

CLASSICAL AND MEDITERRANEAN STUDIES: 1020, Introduction to Mediterranean Archaeology; 2200, Archaic and Classical Greek Art and Architecture, 1000 to 400 B.C.E.; 2210, Late Classical Greek and Hellenistic Art and Architecture; 2250, Roman Art and Architecture; 2260, The Art of Pagans, Christians, and Jews; 2270, Early Christian and Byzantine Art; 3200, The Greek City; 3210, Religions of the Ancient Mediterranean; 3220, The Trojan War in History, Art, and Literature; 3230, Alexander the Great; 3240, Greek Culture in the Roman World; 3881, Internship Readings and Research.

HISTORY OF ART AND ARCHITECTURE: 1100, History of Western Art; 1121, History of Western Architecture; 1285W, Introduction to Medieval Art; 2180, Islamic Art and Architecture; 2200, Cities of the Ancient Mediterranean World; 2210, Art and Architecture of Ancient Egypt; 2220, Greek Art and Architecture; 2270, Early Christian and Byzantine Art; 2275, The Cross and the Crescent: Byzantine-Islamic Confluences in Art; 2285, Medieval Art; 2290, Gothic Paris; 2310, Italian Art to 1500; 2320 or 2320W, Italian Renaissance Workshop; 2325, Great Masters of the Italian Renaissance; 2340W, The Art of Venice; 2342W, Venice: Between Land and Sea; 2360, Northern Renaissance Art; 3224, Greek Sculpture; 3226, Greek Vases and Society; 3228W, Gender and Sexuality in Greek Art; 3240W, Ancient Landscapes; 3252, Cities of the Roman East; 3256W, Roman Architecture and Power; 3272, Portraits in Late Antiquity; 3274, Art and Empire from Constantine to Justinian; 3320 or 3320W, Early Renaissance Florence; 3332, Raphael and the Renaissance; 3334 or 3334W, Michelangelo's Life and Works.

Ancient to Medieval Mediterranean Studies

CLASSICAL AND MEDITERRANEAN STUDIES: 1111, First-Year Writing Seminar; 1120, Greek Civilization; 1130, The Greek Myths; 1150, Roman Civilization; 1200W, Classics and Contemporary Culture; 2300, Ancient Science; 3000, Classical Tradition in America; 3010, The Ancient Origins of Religious Conflict in the Middle East; 3030, Death, Disease, and Health in the Ancient World; 3100, Women, Sexuality, and Family in Ancient Greece and Rome; 3110,

Warfare in the Ancient Mediterranean; 3120, Humor, Ancient to Modern; 3150, Roman Law; 3160, Roman Law and Society; 3190 or 3190W, Augustan Rome; 3250 or 3250W, Jews and Greeks; 3260, Plato: Knowledge, Reality, Goodness; 3310, Culture of the Ancient Near East; 3320, The Armana Age; 3333, Pandemics and Society in Historical Perspective; 3350, History of Ancient and Medieval Christianity; 3360, Early Christian Poetry; 3370, The History of Syriac Christianity; 3380, Desert Spirituality in Early Christianity; 3700, Uncovering Greek Religion; 3710, Maymester in Greece; 3720, Maymester in Rome; 3730, Maymester in Israel; 3850, Independent Study; 3881, Internship Readings and Research; 3890, Special Topics.

ENGLISH: 2318 or 2318W, World Literature, Classical; 3348 or 3348W, Milton.

HISTORY: 1345, The World of Rome; 2155, Muhammad and Early Islam; 2160, Medicine in Islam; 2170, Islam and the Crusades; 2180, Islamic Narratives, Narratives of Islam; 2190, The Last Empire of Islam; 2237, Democracy and Dictatorship: Ancient Politics; 2238, Crime and Criminal Law in Western Antiquity; 2240, Sex Law; 3210, Muslims, Christians, and Jews in Medieval Spain; 3215, The Other 1492; 3310W, Bible in the Greek World.

ITALIAN: 3240, Dante's Divine Comedy; 3242, Dante in Historical Context; 3340, Famous Women from Antiquity to Renaissance; 3803, Maymester in Sicily.

JEWISH STUDIES: 1200, Classical Judaism: Jews in Antiquity; 1220, Jews in the Medieval World; 2150, Issues in Rabbinic Literature; 2620, Jews in Egypt; 3892, Topics in Ancient and Medieval Jewish History.

PHILOSOPHY: 2100, Ancient Philosophy; 2101, Hellenistic and Late Ancient Philosophy; 2102, Medieval Philosophy; 3005, Jewish Philosophy; 3006, Islamic Philosophy.

POLITICAL SCIENCE: 2202, Ancient Political Thought.

RELIGIOUS STUDIES: 1500, Introduction to Islam; 3225, Sexuality in the Hebrew Bible and the Ancient Near East; 3350, Christian-Jewish Relations in Medieval and Early Modern Europe; 3926, Ancient Goddesses; 4551 or 4551W, Mysticism in Islam; 4938, Marriage in the Ancient Near East and the Hebrew Bible.

Archaeological and Art-Historical Method and Theory

ANTHROPOLOGY: 2603, Comparative Writing Systems; 3261, Geographic Information Systems and Remote Sensing; 3260, Ceramic Analysis in Archaeology; 3262, Ethics in Anthropology, Archaeology, and Development; 3344, Genetic Anthropology Lab Techniques; 3372, Human Osteology; 3866, Archaeological Excavation; 3901, Problems in Anthropological Theory; 4345, Human Evolutionary Genetics.

CLASSICAL AND MEDITERRANEAN STUDIES: 3600, Seminar in Digital Humanities.

EARTH AND ENVIRONMENTAL SCIENCES: 1030, Oceanography; 1510, The Dynamic Earth: Introduction to Geological Sciences; 2510, Earth Systems through Time.

HISTORY OF ART AND ARCHITECTURE: 3810 or 3810W, Exhibiting Historical Art.

The Modern Mediterranean World

HISTORY: 1200, The Arab Spring; 3190, Religion, Culture, and Commerce: The World Perspective.

HISTORY OF ART AND ARCHITECTURE: 2780, History of Western Urbanism; 2782, Storied Places: History of Landscape Design.

JEWISH STUDIES: 2600, Muslims and Jews.

RELIGIOUS STUDIES: 4552, Islam in the Modern World.

Climate and Environmental Studies

Program of Concentration in Climate Studies

Honors Program in Climate Studies

Minor in Environmental and Sustainability Studies

DIRECTOR Zdravka Tzankava (Climate and Environmental Studies)

PROFESSORS Brooke Ackerly (Political Science), Teresa Goddu (English), Paul Stob (Communication Studies)
ASSOCIATE PROFESSORS Beth Conklin (Anthropology), Larisa DeSantis (Earth and Environmental Science), Jonathan Gilligan (Earth and Environmental Science), Jessica Oster (Earth and Environmental Science), Betsey Robinson (History of Art and Architecture), Anand Taneja (Religious Studies)
ASSISTANT PROFESSORS Patrick Greiner (Sociology), Ole Molvig (History), Tasha Rijke-Epstein (History), Matthew Zaragoza-Watkins (Economics)

ASSOCIATE PROFESSOR OF THE PRACTICE Zdravka Tzankova (Climate and Environmental Studies)
LECTURERS Joe Bandy (Sociology), Amanda Little (English), Dan Morgan (Earth and Environmental Science)
AFFILIATED FACULTY Mark Abkowitz (Civil and Environmental Engineering), Yolanda McDonald (Human and Organizational Development), Lori Troxel (Civil and Environmental Engineering)

COURSES OFFERED: ENVS

Human beings and their societies necessarily interact with and alter the Earth’s natural environment. Climate and Environmental Studies (CES) is home to two interdisciplinary undergraduate programs. Both the Climate Studies major (CLIM) and the Environmental and Sustainability Studies (ESS) minor allow the student to examine human interaction with the environment by concentrating on methods in the natural sciences, humanities and social sciences with some experience in the other areas of study as well as environmental engineering and social engagement. The major, in particular, is designed to provide students with a strong foundation in the full range of disciplinary perspectives across the humanities, natural sciences and social sciences.

Program of Concentration (I) in Climate Studies

The major requires 30 credit hours. Some of the courses require prerequisites, and students are responsible for meeting those prerequisites if they choose to satisfy the major with those classes.

1. Climate Studies introduction: ENVS 1101
2. Climate science foundation: EES 2110 or EES 3310
3. Core humanities course. One course in the humanities with climate-related focus: ASIA 2308, CSET 3320W, ENGL 3731, HART 3233, HIST 1530, RLST 3472
4. Core social sciences course. One course in the social sciences with climate-related focus: ANTH 1111, 2114, 2225; ECON 4050 Topics in Econometrics, when offered as Environmental Econ and Policy; PSCI 3266; SOC 3311, 3317, 3319
5. Core natural sciences course. One course in the natural sciences with a climate-related focus: EES 1081, 2510, 3333, 4440, 4650, 4680, 4750
6. Methods and practices courses. Two courses from the following: ANTH 2400, 3120, 3125, 3261; BME 2400; CE 3300; CMST 1501, 3800; CSET 2100, 3257; CS 1000; 2204, DHUM 1100, 1200; DS 1000, 1100, 2100, 3100; ECON 1500, 1510, 3035; HART 1740W, 2815; HIST 1515; HODC 3222; MATH 1010, 1100, 1201, 1301, 2810, 2821; PSY 2100, PSY-PC 2120; SOC 2100, 3002
7. Specialization electives: 9 credit hours. See the director of undergraduate studies for recommended concentration clusters. The nine additional credit hours may come from any of the courses listed above for #3, 4, and 5. They may also include the following additional courses: ANTH 2109, 2150, 2220W, 3138, 3202, 3333W, 4154; ASIA 2306, 2309W; BSCI 1511, 2238, 3231, 3233, EES 2150, 2309W, 2580, 3220, 3280, 3330, 4233, 4300, 4480; ECON 2170; ENVE 3610, 4305; ENVS 4101, 4101W; CE 2120, 3300, 4300; CSET 3240W, 3890; ENGL 2330W; 3240; HART 1740W, 2200, 3240W; HODC 3650, HODH 3650; HODI 3270; SOC 1030, 3314, 3312, 3316, 3318, 3319, 3321; PSCI 3253, 3264W, 3265; UNIV 3315/5315

Program II: Honors Program in Climate Studies

The Honors Track offers majors in Climate Studies the opportunity to pursue intensive work through an independent research project. Students interested in pursuing the Honors Track should contact the director of undergraduate studies for more information. To be considered for the Honors Track in Climate Studies, a student must have a minimum cumulative GPA of 3.4 and a minimum GPA of 3.6 for courses that count toward the major. Students should express interest to the director of undergraduate studies before March 1 of their junior year. Students who are recommended for the program by the director of undergraduate studies will typically begin the program by taking ENVS 4101W during the fall term of the senior year.

The Honors Track requires the following:

1. Successful completion of requirements 1-7 in Program I, for a total of 30 credit hours. Requirements 1, 2, and 6 must be completed prior to beginning the honors courses.

2. Successful completion of at least two semesters of honors coursework (6 credit hours) for the Honors Track. Students take ENVS 4101W or ENVS 4981 (Honors Research) during the first semester of their senior year, when they develop the literature review and research plan. The first semester of honors coursework counts as part of requirement 7 of Program I and can be used to fulfill the requirements for Program I should students not go on to finish honors during the second semester of honors coursework. After completing the first semester of honors coursework, students then take a minimum of 3 and maximum of 6 credit hours of 4981 (Honors Research) during the second semester, which is in addition to the 30 credits required to complete the standard major. Thus students must take a minimum of 6 credit hours of honors coursework and may take up to 9 credit hours.

3. In order to earn honors in Climate Studies, students must successfully complete, defend, and perform requested revisions on the honors thesis before deadlines for graduation. Successful defense of the completed thesis is through an oral presentation and examination by the thesis adviser and a designated faculty reader near the end of the student's final semester. Revisions must be completed and the thesis submitted no later than the last day of undergraduate classes.

4. Students meeting these requirements receive honors or highest honors in Climate Studies, depending on the

quality of the thesis and performance on the defense. Successful candidates will be recognized in the commencement program and receive a Vanderbilt diploma that records honors or highest honors in Climate Studies.

Minor in Environmental and Sustainability Studies

Students who want to minor in environmental and sustainability studies must take a minimum of six courses (18 credit hours total) chosen from the courses listed below; additional relevant courses may be counted with approval of the director of the program. Courses must be distributed as follows: (A) one Natural Science- and Technology-Intensive course; (B) one Humanities course; (C) one Social-Behavioral Sciences and Policy-Intensive course; (D) two additional courses from B and/or C; and (E) a capstone course. No more than two courses may be at the 1000 level. In addition, no more than 3 credit hours may be counted simultaneously toward both the environmental and sustainability studies minor and any other major or minor. Topics courses may count toward the minor with approval of the director.

A. *Natural Science- and Technology-Intensive Courses:* BSCI 1103, BSCI 2238, BSCI 2238L, BSCI 3233, EES 1030, EES 1070, EES 1080, EES 1081, EES 1111*, EES 1140, EES 1510, EES 1510L, EES 2110, EES 2150, EES 2510, EES 3220, EES 3220W, EES 3310, EES 3333, EES 4300, EES 4650, EES 4680, EES 4750, EES 4760, EES 4820, ENVE 3610, ENVE 4615, ENVE 4700, ES 1115*
B. *Humanities Courses:* AMER 1111*, AMER 4000*, AMER 4100*, CSET 3320W, ENGL 2316/2316W*, ENGL 2330, ENGL 3720/3720W*, ENGL 3730, ENGL 3731, ENGL 3898/3898W*, GSS (formerly WGS) 2268, GSS (formerly WGS) 2270, HART 2150, HART 2662, HART 3240W, HART 2782, HART 3790, HIST 1520, HIST 1525, HIST 1530, HIST 2108, HIST 2108W, HIST 2139, HIST 2413, HIST 2413W, PHIL 1111*, PHIL 3611, PHIL 3612, RLST 2472, RLST 3472, RLST 3921
C. *Social-Behavioral Sciences and Policy Intensive Courses:* ANTH 1111*, ANTH 2109, ANTH 2114, ANTH 2150, ANTH 2220, ANTH 2220W, ANTH 2225, ANTH 2227, ANTH 3138, ANTH 3261, ANTH 4154, ECON 2170, GSS (formerly WGS) 1111*, HOD 3270, PSCI 3266, PSY 1111*, SOC 1020/1020W*, SOC 1030, SOC 1111*, SOC 3311, SOC 3312, SOC 3313, SOC 3314, SOC 3315, SOC 3316, SOC 3317, SOC 3318, SOC 3319, SOC 3321
D. Two additional courses from lists B and/or C above.
E. *Capstone: ENVS 4101 or ENVS 4101W, for minors only*

*Special topic and First-Year Writing Seminar sections require the approval of the director of the environmental and sustainability studies minor to count in the minor.

Computer Engineering

CHAIR Bennett A. Landman

ASSOCIATE CHAIR Gabor Karsai

DIRECTOR OF UNDERGRADUATE STUDIES W. Timothy Holman

PROFESSORS EMERITI Arthur J. Brodersen, James A. Cadzow, J. Michael Fitzpatrick, Kazuhiko Kawamura, Stephen R. Schach

PROFESSORS Bharat L. Bhuva, Gautam Biswas, Robert E. Bodenheimer, Jr., Benoit M. Dawant, Aniruddha S. Gokhale,

Gábor Karsai, Xenofon D. Koutsoukos, Bennett A. Landman, Akos Ledeczi, Lloyd W. Massengill, Padma Raghavan, Nilanjan Sarkar, Douglas C. Schmidt, Ronald D. Schrimpf, Janos Sztipanovits

PROFESSOR OF THE PRACTICE Walter Collett

ASSOCIATE PROFESSORS Abhishek Dubey, Douglas H. Fisher, Jules White, D. Mitchell Wilkes

ASSOCIATE PROFESSOR OF THE PRACTICE Graham S. Hemingway

RESEARCH ASSOCIATE PROFESSOR Brian D. Sierawski

ASSISTANT PROFESSORS Matthew Berger, Catie Chang, Yuankai Huo, Taylor Johnson, Maithilee Kunda, Jack H. Noble, Ipek Oguz

ADJUNCT ASSISTANT PROFESSOR Andrew Sternberg

COURSES OFFERED: ECE

The program in computer engineering deals with the organization, design, and application of digital processing systems as general-purpose computers or as embedded systems, i.e., components of information processing, control, and communication systems. The program provides a strong engineering background centered on digital technology combined with an understanding of the principles and techniques of computer science. Computer engineering is design-oriented. The basic principles of engineering and computer science are applied to the task at hand, which may be the design of a digital processor, processor peripheral, or a complete digital processor-based system.

Whatever the undertaking, the comprehensive academic training in this program enables engineers to evaluate the impact of their decisions, whether working with hardware, software, or the interface between the two.

The computer engineering program combines fundamental core requirements with flexibility to allow students to specialize in a variety of emphasis areas within the program. The curriculum includes requirements in the basic sciences, mathematics, and humanities; a primary core of hardware and software courses; and a set of electives that combine breadth and depth requirements as described below. Students who major in computer engineering who wish to apply for graduate study in electrical engineering or computer science are encouraged strongly to select their elective courses to demonstrate depth in that particular area; the structure of the program enables that option. The course of study leads to a bachelor of engineering.

Undergraduate Honors Program. With faculty approval, junior and senior students may be accepted into the Honors Program. To achieve honors status, the student must:

1. achieve and maintain a minimum GPA of 3.5.
2. complete 3 hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861) with final written report
3. complete 6 hours of ECE program elective credit from the following list:
    a. up to 3 additional hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861), or
    b. design domain expertise (DE) courses beyond the one course required by the program, or
    c. CS 3259, CS 3892, CS 4287, or
    d. 5000-level courses.

The diploma designation is Honors in Computer Engineering.

Facilities. Electrical and computer engineering supports undergraduate laboratories emphasizing the principal areas of the disciplines: analog and digital electronics, microcomputers, microprocessors, microelectronics, and instrumentation. In addition, several specialized facilities are available for graduate research: the advanced carbon nanotechnology and diamond labs, the Institute for Software Integrated Systems, the Institute for Space and Defense Electronics, the Medical Image Processing Laboratory, the Center for Intelligent Systems and Robotics Laboratories, the Embedded Computer Systems Laboratory, and biomedical, biosensing, and photonics laboratories.

The work in electrical and computer engineering is supported by a variety of computers and networks, including the high-performance computing facilities of the Advanced Computing Center for Research and Education. Vanderbilt is one of the founding partners in the Internet II initiative.

Students interested in the major or minor in Computer Engineering are encouraged to consider instead those in Electrical and Computer Engineering.

The major or minor in Computer Engineering may no longer be declared. CmPE students will be supported in completing the relevant program, including the pursuit of honors in the major if relevant.

Curriculum Requirements

The B.E. in computer engineering requires a minimum of 121 hours, distributed as follows:

1. Mathematics (18 hours). Required courses: MATH 1300, 1301, 2300, 2400, 2810
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L; MSE 1500, 1500L (or CHEM 1602, 1602L).
3. Engineering Fundamentals (6 hours). Required courses: ES 1401, 1402, 1403, 2100W.
4. Culminating Design Experience (7 hours). Required courses: ECE 4950, 4951, 4959.
5. Computer Engineering Core (at least 23 hours). Required courses: ECE 2112, 2123, 2123L, 2218, 2218L; either ECE 2213 (and 2213L) or 3214; CS 1101 or 1104; CS 2201, 3251.
6. Computer Engineering Electives (18 hours). To comprise:
    a. at least six hours in each of two of the three Computer Engineering Areas of Concentration listed below. Embedded Systems must include ECE 4376, Computing Systems and Networks must include CS 3281, and Intelligent Systems and Robotics must include ECE 4257 among the six hours.
    b. at least one design domain expertise (DE) course as designated below
    c. other courses listed in the Computer Engineering Areas of Concentration below, or ECE or CS courses numbered above 3000 (including CS 3860, 3861, and ECE 3860, 3861).
    d. courses with associated labs require completion of both the lecture and lab portions to count as Computer Engineering Electives.
7. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
8. Technical electives (12 hours).
    a. CHBE (except 2150, 2900W); CE; CS (except 1000, 1101, 1103, 1104, 1151); ECE (hours above basic requirement in sections 5 and 6 above); ENGM 3010; ENVE; ES 3300; ME; MSE (except 1500, 1500L); NANO 3000; SC 3250, 3260 (6-12 hours). At least 6 hours must be taken from the following approved engineering technical electives: BME (except 2860)**;
    b. (0-6 hours). Up to 6 hours may be taken from this list of optional technical electives: ENGM 2160, 2210, 3000, 3100, 3300, 3650, 4500; MSE 1500, 1500L (if CHEM 1602, 1602L is used for basic science requirement); ASTR (except 1010, 1111, 2130); BSCI (except 1111); CHEM (except 1010, 1020, 1601, 1602, 1111); EES (except 1080, 1111, 2150); MATH 2410 and above; NSC 2201, 3269, 4961; PHYS above 2000; PSY 2100, 3780
9. Open Elective (3 hours).

Undergraduates in computer engineering may apply the pass/fail option only to courses taken as open electives subject to the school requirements for pass/fail.

**Computer engineering majors may earn credit for only one of BME 3300 and BME 3302.

Computer Engineering Areas of Concentration

Embedded Systems	Computing Systems and Networks	Intelligent Systems and Robotics
ECE 4257	CS 3265	CS 4260
ECE 4275	CS 3274 (DE)	CS 4269 (DE)
ECE 4356 (DE)	CS 3281	ECE 4257
ECE 4358 (DE)	CS 3282 (DE)	ECE 4353 (DE)
ECE 4376 (DE)	CS 4266 (DE)	ECE 4354 (DE)
ECE 4377 (DE)	CS 4278 (DE)	ECE 4358 (DE)
ECE 4385 (DE)	CS 4279 (DE)	ME 4271
CS 3274 (DE)	CS 4383 (DE)	
	CS 4284 (DE)	
	CS 4285	
	CS 4288 (DE)	
	ECE 4371 (DE)	

(DE) designates a Design Domain Expertise course

Specimen Curriculum for Computer Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
ECE 2112	Circuits I	3	–
ECE 2123, 2123L	Digital Systems and Laboratory	4	–
ECE 2218, 2218L	Microcontrollers and Laboratory	–	4
CS 2201	Program Design and Data Structures	3	–
CS 3251	Intermediate Software Design	–	3
	Liberal Arts Core	–	3
		17	14
JUNIOR YEAR			
MATH 2810	Probability and Statistics for Engineering	-	3
ES 2100W	Technical Communications	3	–
ECE 4376, 4376L	Embedded Systems and Laboratory	4/3	–
or CS 3281	Principles of Operating Systems I		
ECE 2213, 2213L	Circuits II and Laboratory Signals and Systems	4/3	–
or ECE 3214			
	CMPE Program Electives ‡	3	6
	Liberal Arts Core	3	3
	Technical Electives	–	3
		15-17	15
SENIOR YEAR			
ECE 4950	Program and Project Management for EECE	3	–
ECE 4951	Electrical and Computer Engineering Design	–	3
ECE 4959	Senior Engineering Design Seminar	1	–
	CMPE Program Electives ‡	3	3
	Liberal Arts Core	3	3
	Technical Electives	6	3
	Open Electives	–	3
		16	15

‡ As described in “Computer Engineering Degree Requirements” subsection 6. At least one design domain expertise (DE) course required prior to ECE 4951.

Minor in Computer Engineering

The minor in computer engineering is available to all students except those majoring or minoring in electrical engineering or computer science. The computer engineering minor requires a minimum of 17 hours of EECS courses, including the completion of all laboratory corequisites for courses selected for the minor, distributed as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Digital Systems: ECE 2123, 2123L	4 hours
3. Microcontrollers: ECE 2218, 2218L	4 hours
4. ECE 2112 or CS 2201 or CS 2204	3 hours
5. At least 3 hours of ECE or CS courses numbered 2000 or above (excluding ECE 3860, 3861 or CS 3860, 3861)	3 hours
Total:	17–18 hours

Computer Science

Undergraduate Honors Program

Curriculum Requirements

Specimen Curriculum for Computer Science

Second Major in Computer Science for Non-Engineering Students

Computer Science Minor

CHAIR Xenofon D. Koutsoukos

ASSOCIATE CHAIR Julie L. Johnson, Douglas Schmidt

DIRECTOR OF UNDERGRADUATE STUDIES Julie L. Johnson

DIRECTOR OF GRADUATE STUDIES Abhishek Dubey (MS), Taylor T. Johnson (PhD)

DIRECTOR OF DISTANCE LEARNING GRADUATE STUDIES Dana Zhang

DIRECTOR OF GRADUATE RECRUITING Ipek Oguz

PROFESSORS EMERITI Charlotte F. Fischer, J. Michael Fitzpatrick, Stephen R. Schach

PROFESSORS Gautam Biswas, Robert E. Bodenheimer, Jr., Benoit M. Dawant, Aniruddha S. Gokhale, Gábor Karsai, Xenofon D. Koutsoukos, Bennett Landman, Akos Ledeczi, Bradley A. Malin, Sandeep Neema, Padma Raghavan, Nilanjan Sarkar, Douglas C. Schmidt, Nabil Simaan, Jonathan Sprinkle, Keivan Stassun, Janos Sztipanovits, Jules White, Daniel Work

RESEARCH PROFESSORS Robert Laddaga, Zhaohua Ding

PROFESSORS OF THE PRACTICE Graham S. Hemingway, Julie L. Johnson, Gerald H. Roth, Jesse Spencer-Smith

ADJUNCT PROFESSORS Charles Easttom, Amit Misra, Jesse Spencer-Smith

ASSOCIATE PROFESSORS Hiba Baroud, Abhishek Dubey, Douglas H. Fisher, Ivelin S. Georgiev, Taylor T. Johnson, Thomas Lasko, Yu Sun, Pamela Wisniewski, Thilo Womesdorf

ASSOCIATE PROFESSOR EMERITUS Jeremy P. Spinrad

ASSOCIATE PROFESSORS OF THE PRACTICE Daniel Arena, Vikash Singh, Robert Tairas

ASSISTANT PROFESSORS Thomas Beckers, Matthew Berger, Luca Bonomi, Catie Chang, You Chen, Tyler Derr, Daniel

Fabbri, Yu Huang, Yuankai Huo, David Hyde, Soheil Kolouri, Maithilee Kunda, Forrest Laine, Kevin Leach, Meivi Ma, Daniel Moyer, Jack H. Noble, Ipek Oguz, Mika Rubinov, Bryan Ward, Wei-Qi Wei, James Weimer, Jie Ying Wu, Zhijun Yin, Maizie Zhou

RESEARCH ASSISTANT PROFESSOR Gayathri Narasimham

ASSISTANT PROFESSORS OF THE PRACTICE Gina Bai, Charreau Bell, Shervin Haiiamini, Md. Kamrul Hasan, Dana Zhang

ADJUNCT ASSISTANT PROFESSORS Yogesh Barve, Ronald Hedgecock, Marcus Quinones-Grueiro, Adrienne Slaughter, Hamilton Turner

COURSES OFFERED: CS

The program in computer science blends scientific and engineering principles, theoretical analysis, and actual computing experience to provide undergraduate students with a solid foundation in the discipline. Emphasis is on computing activities of both practical and intellectual interest, and on theoretical studies of efficient algorithms and the limits of computation. Computer facilities are available for class assignments, team projects, and individual studies.

Students are challenged to seek original insights throughout their study. Working in teams, participating in summer internships, supporting student professional organizations, and developing interdisciplinary projects are strongly encouraged.

The computer science major provides an excellent back- ground for medical studies, and the flexibility provided by its many open electives allows students to prepare for medical school while earning a degree in computer science with a normal load in four years. Interested students should discuss their plans with their computer science adviser in the fall of their first year.

In addition to the bachelor of science, the master of science and doctor of philosophy are also awarded in computer science. Computer Science majors in the School of Engineering are encouraged to consider a double major or minor to complement their CS studies. Popular double majors include Mathematics, Economics, HOD and Physics. The second major in Computer Science is accessible to students outside of the School of Engineering. Second major requirements can be found following the engineering specimen curriculum below.

Undergraduate Honors. Honors in Computer Science provides recognition for select undergraduates who have experienced advanced study in computer science. Students who have an overall GPA of 3.5 or better, a GPA of 3.5 or better in computer science classes, and six hours of any combination of undergraduate research (CS 3860 and 3861) and courses at or above the 6000-level will be granted honors in the computer science program. The diploma designation is Honors in Computer Science.

Curriculum Requirements

The B.S. in computer science requires a minimum of 120 hours, distributed as follows:

1. Mathematics (17-19 hours). Required components:
    a. Calculus/Linear algebra (14–16 hours). A sequence selected from the following:
        i. MATH 1300, 1301, 2300, and one of 2410 or 2600, or
        ii. MATH 1300, 1301, 2500, 2501
    b. Statistics/Probability (3 hours): MATH 2810, 2820, or 3640.
2. Science (12 hours). To be selected from the following list and include at least one laboratory course: BSCI 1100, 1100L, 1510, 1510L, 1511, 1511L, 2218, 2219; CHEM 1601, 1601L, 1602, 1602L; EES 1510, 1510L; MSE 1500, 1500L; PHYS 1601, 1601L, 1602, 1602L. Advanced Science Courses may be substituted by special

permission. Recommended: CHEM 1601, 1601L; PHYS 1601, 1602.

3. Introduction to Engineering (3 hours): ES 1401, 1402, 1403.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Computer Science Core (25 hours).
    - Software/Problem Solving: CS 1101 or 1104, and CS 2201, 3251, 3270.
    - Hardware/Systems: CS or ECE 2281, CS or ECE 2281L, CS 3281.
    - Foundations: CS 2212, 3250.
6. Computer Science Depth (15 hours). To be selected from computer science courses numbered 3000 or higher (except CS 3262); ECE 4353, 4354, 4375, and no more than two from MATH 3320, 3620, 4600, 4620. A maximum of 6 hours may come from CS 3860, 3861.
7. Computer Science Project (3 hours). To be selected from CS 3892, 4239, 4249, 4269, 4279, 4287, 4289.
8. Computer Science Seminar (1 hour). CS 4959.
9. Technical Electives (6 hours). To be selected from courses numbered 2000 or higher within the School of Engineering (except 2860 in any program, ENGM 2440, ENGM 4800, ES 2700, ES 3884, and CS courses numbered below 3000); or courses numbered 2000 or higher in the College of Arts and Science listed in the mathematics and natural science (MNS) AXLE distribution requirements.
10. Open Electives (18–20 hours).
11. Computers and Ethics (3 hours) CS 1151. May be used to satisfy three hours from the Liberal Arts Core (#4) or Open Electives (#10). May not be taken on a pass/fail grading basis by CS majors or minors.
12. Writing Component (3 hours). At least one “W”-designated course or 1111 course in the English Language must be included from the Liberal Arts Core (#4), Technical Electives (#9), or Open Electives (#10).

Undergraduates in computer science may apply the pass/fail option only to courses taken as open electives, technical electives, or part of the liberal arts core, subject to the school requirements for pass/fail.

Specimen Curriculum for Computer Science

		Semester hours	
FIRST YEAR		FALL	SPRING
CHEM 1601, 1601L	General Chemistry and Laboratory	4	–
PHYS 1601, 1601L	General Physics I and Laboratory	–	4
MATH 1300	Accelerated Single-Variable Calculus I	4	–
MATH 1301	Accelerated Single-Variable Calculus II	–	4
ES 1401-1403	Introduction to Engineering	3	–
CS 1101	Programming and Problem Solving	–	3
	Liberal Arts Core	–	3
	Open Electives	3	–
		14	14
SOPHOMORE YEAR			
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
MATH 2300	Multivariable Calculus	–	3
CS 2201	Program Design and Data Structures	3	–
CS 2212	Discrete Structures	3	–
CS 2281, 2281L	Computer Architecture	–	4
CS 3251	Intermediate Software Design	–	3
	Liberal Arts Core	–	3
	Open Electives	6	3
		16	16
JUNIOR YEAR			
MATH 2410	Methods of Linear Algebra	–	3
MATH 2820	Introduction to Probability and Mathematical Statistics	3	–
CS 3250	Algorithms	–	3
CS 3270	Programming Languages	3	–
CS 3281	Principles of Operating Systems I	3	–
	Computer Science Depth	–	3
	Liberal Arts Core	3	3
	Open Electives (ES 2100W recommended)	2	3
		14	15
SENIOR YEAR			
CS 4959	Computer Science Seminar	1	–
	Computer Science Project	–	3
	Computer Science Depth	9	3
	Technical Electives	3	3
	Liberal Arts Core	3	3
	Open Electives	–	3
		16	15

Second Major in Computer Science for Non-Engineering Students

The second major in computer science for students enrolled outside the School of Engineering requires 40 hours comprising items 5 and 7 of the curriculum requirements listed above as well as 12 hours of course work as described in item 6.

Courses taken toward the second major may not be taken pass/fail.

Computer Science Minor

The minor in computer science is available to all students except those majoring in computer engineering. The minor in computer science requires 15–16 hours of computer science courses as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Discrete Structures: CS 2212	3 hours
3. Intermediate Computer Concepts: CS 2201	3 hours
4. CS 2281 (and 2281L) or ECE 2281 (and 2281L), or CS 3250, or CS 3251	3-4 hours
5. One additional CS course numbered 3000 or above (excluding CS 3262)	3 hours
Total:	15-16 hours

Communication of Science and Technology

Program of Concentration in Communication of Science and Technology

Honors Program

Minor in Communication of Science and Technology

INTERIM DIRECTOR David Wright

DIRECTOR OF UNDERGRADUATE STUDIES Michelle (Shellie) Richards

PROFESSORS Michael Bess (History), Bonnie Dow (Communication Studies), Jay Clayton (English), Jennifer M. Fay (Cinema and Media Arts, English), David Hess (Sociology, Climate and Environmental Studies), M. Shane Hutson (Physics and Astronomy), Sarah Igo (History), Lutz Koepnick (German, Cinema and Media Arts), Robert J. Scherrer (Physics and Astronomy), Mark Schoenfield (English), Paul H. Stob (Communication Studies), David W. Wright (Chemistry)

PROFESSOR OF THE PRACTICE Christopher Rowe (Engineering Management)

ADJUNCT PROFESSOR Kevin Johnson (Biomedical Informatics)

ASSOCIATE PROFESSORS Jeffrey A. Bennett (Communication Studies), Douglas H. Fisher (Computer Science and Computer Engineering), Suzana Herculano-Houzel (Psychology), Laura Stark (Medicine, Health, and Society)

ASSISTANT PROFESSORS Karan Jani (Physics and Astronomy), Ole Molvig (History), Kendra H. Oliver (Pharmacology)

RESEARCH ASSISTANT PROFESSOR Michelle (Shellie) Richards

ASSISTANT PROFESSOR OF THE PRACTICE Paul Durst

PRINCIPAL SENIOR LECTURER Daniel Morgan (Earth and Environmental Sciences)

SENIOR LECTURERS Dusan Danilovic (Physics and Astronomy), Ashleigh Maxcey (Psychology)

LECTURER Stephanie Castillo

WRITER IN RESIDENCE Amanda Little, Stephen K. Ornes

COURSES OFFERED: CSET

The Program in Communication of Science and Technology (CSET) sits at the intersection of the sciences and the humanities, and it builds on the vast amount of effort at Vanderbilt devoted to interdisciplinary work that spans the natural sciences, engineering, the social sciences, and the humanities. CSET draws on both the scientific communities (natural sciences, social sciences, engineering, medicine) and the creative communities (public speaking, writing, digital media production) across multiple colleges at Vanderbilt.

CSET is designed for students who have an interest in science and technology and also are interested in communicating science and technology to both peer-professional audiences and to the larger world. CSET is ideal as a second major for students pursuing a first major in one of the natural sciences, any of several of the social sciences, engineering, the Science, Medicine and Technology concentration in History, and the Creative Writing track in English. In the twenty-first century scientists must be able to communicate their work and their ideas to their professional peers, to nonspecialists who review grant proposals, and to lay audiences who ultimately fund, support, and benefit from the discoveries made in laboratories around the world. In return, the scientific community needs support from professional writers, journalists, technical writing specialists, public speakers, film and video writers and producers, and bloggers in communicating modern science, technology, and medicine to lay audiences.

Program of Concentration in Communication of Science and Technology

Track 1: Standard track [at least 42 credit hours]

1. Core [9 credit hours]
    a. CSET 1500: Communicating Science [3]
    b. CSET 2100: Science Communication Tools and Techniques [3]
    c. CSET 2500: Science for Everyone
2. Telling Scientific Stories: [6 credit hours, of which at least credit hours must be from category a.]

    a. Writing Skills

        i. blogging (CSET 3215W, ENGL 3215, ENGL 3215W)
        ii. technical writing (CSET 3090, 3100, 3200W, BME 4951, CE 4950, ChBE 4951W, CHEM 3135W, ENGM 2210, ME 4951, ES 2100W, PSCI 2256, 3266)
        iii. investigative journalism (CSET 3320W, ENGL 3896, 3896W)
        iv. science writing (ANTH 3150W, CSET 3240W, 3241W, 3281W, 3320W, ENVS 4101W, ENGL 3440W, 3720, 3720W, 3730, 3730W)
        v. climate studies writing (ENVS 4101W, SOC 3318)
        vi. non-fiction writing (ENGL 3210, 3220)
        vii. fiction writing (ENGL 3210, 3220)
        viii. science fiction writing (ENGL 3728, 3728W, RUSS 2273W)
        ix. script writing (CMA 2500W, 2510W, 2600W, THTR 2311W, 3311)
        x. history of science writing (All three-credit-hour courses approved for Program G. Science, Medicine, and Technology in History)
        xi. science-related philosophy (PHIL 3601, 3604, 3608, 3611, 3612, 3616, 3657)
        xii. science-related religious studies (RLST 2811, 3472, 3921, 3941)
        xiii. HONS 1830W and 1850W courses
        xiv. Other: CMST 3250W, EES 2309W
        xv. CSET 3891 (Special topics in Writing Skills)

    b. Science and Narrative
        i. virtual reality (CSET 3257, CS 4249, CMA 1820W, 3257),
        ii. podcasting (CSET 2200),
        iii. telling stories with data (CSET 3410),
        iv. film making (CMA 1500, 2240, 2250, 2260, 2270, 3891),
        v. CSET 3892 (Special topics in Science and Narrative).

3. Bridging the Sciences and Humanities [9 credit hours]
    Any three courses from the approved list, found below, of which at least one course must be from the CSET offerings. These courses bridge the sciences and the humanities and include but are not limited to courses covering the history of science, the history of medicine, climate studies, MHS, the philosophy of science, and ethics and science.

4. Natural Science and/or Engineering Depth [15 credit hours]
   A combination of any five three-credit-hour courses that are identified as MNS courses (if in A&S) or School of Engineering courses. Students may count any one statistics course toward this requirement from the following list: BME 2400, 3400, BSCI 3270, CE 3300, ChBE 3900W, ECON 1500, 1501, MATH 1011, 2810, 2820, PSY 2100, PSY-PC 2110, 2120, SOC 2100. Students may count any one three-credit-hour Data Science course toward this requirement. Students may count the three one-credit hour courses ES 1401, 1402, and 1403 as equivalent to a single three-credit hour course if they earn credit for all three courses. Except for the listed statistics courses, MATH and PHIL courses identified as MNS for purposes of AXLE do not count toward this requirement. CSET 2500 counts toward the CSET Core and not this requirement. One-credit laboratory classes, alone or in combination, do not count for this requirement.

5. Electives [3 credit hours] chosen from any or any combination of:

    a. Directed Study (CSET 3840)
    b. Project in Science Writing and Communicating (CSET 3841)
    c. Internships (CSET 3880, 3881)
    d. Research (research hours can include appropriate credit hours from another department or program; these hours must be approved by the student's CSET adviser)
    e. Honors in CSET (CSET 4998)
    f. Qualifying Telling Scientific Stories or Bridging the Sciences and Humanities or Natural Science and/or Engineering Depth courses
    g. One additional 2100-level or higher W course from any department or program in A&S.

Additional notes:

- Students in the College of Arts and Science must count at least 24 credit hours for CSET that are not also used to fulfill any program requirements for any other major or minor in the College of Arts and Science.
- A course can only be used once to fulfill a single CSET requirement, even if it is eligible under more than one CSET requirement (e.g. ENGM 2210 can count for requirement #4 or #7, but not both).
- A student may count no more than 3 total credit hours toward any and all requirements of the CSET major from courses in the following list: BME 4951, ChBE 4951W, CE 4950, CE 4951, ENGM 2210, and ES 2100W.

Track 2. CSET plus an approved STEM major* or minor**

At least 27 credit hours, with verification of 15 additional hours of Natural Sciences or Engineering classes.

Any student with an approved STEM major or registered in the School of Engineering must complete requirements 1, 2, 3, and 5 of the Standard Track.

Requirement 4 of the Standard Track will be waived by the URO upon verification of completion of 15 additional credit hours of courses that fulfill this requirement and also count toward the student's natural science major or degree program in the School of Engineering.

* Approved STEM majors include Anthropology; Biochemistry & Chemical Biology; Biological Sciences; Chemistry; Earth & Environmental Sciences; Ecology, Evolution & Organismal Biology; Environmental Sociology; Molecular & Cellular Biology; Neuroscience; Physics; Psychology; Cognitive Studies (Peabody College); or any major offered by the School of Engineering. Additional natural or social science majors may be added at any time, upon recommendation of the CSET Steering Committee.

** Approved STEM minors include Anthropology; Astronomy; Biological Sciences; Chemistry; Earth & Environmental Sciences; Environmental Sociology; Neuroscience; Physics; Psychology; Cognitive Studies (Peabody College); Engineering Management, Materials Science and Engineering, Computer Science, Computer Engineering, Digital Fabrication, Electrical and Computer Engineering, Environmental Engineering, Energy and Environmental Systems, Nanoscience and Nanotechnology, Scientific Computing.

Track 3: CSET plus Program G History [at least 27 credit hours]

Any student with a verified major in the history of science (Program G History) must complete requirements 1, 4, and 5 of the Standard Track.

Requirements 2 and 3 of the Standard Track will be waived by the URO upon verification of completion of 15 additional credit hours of courses that fulfill these requirements and that also count toward the student's Program G History major.

Track 4: CSET plus MHS [at least 30 credit hours]

Any student with a major in MHS must complete requirements 1, 2, and 4 of the Standard Track.

Requirements 3 and 5 of the Standard Track will be waived by the URO upon verification of completion of 12 additional credit hours of courses that fulfill these requirements and that also count toward the student's MHS major.

Track 5: CSET plus an approved major in the Humanities or Social Sciences^ [at least 33 credit hours]

Any student with an approved major in the humanities or social sciences must complete requirements 1, 3, and 4 of the Standard Track.

Requirements 2 and 5 of the Standard Track will be waived by the URO upon verification of completion of 9 additional credit hours of courses that fulfill these requirements and that also count toward the student's approved humanities or social science major.

^Approved humanities and social science majors include Cinema and Media Arts, Climate Studies, English, History, Philosophy, Political Science, and Religious Studies. Additional humanities and social science majors offered and approved by the faculty in the College of Arts & Science may be added at any time, upon recommendation of the CSET Steering Committee.

Approved Courses:

List of Courses approved for the Bridging the Sciences and Humanities requirement:

These courses bridge the sciences and the humanities and include but are not limited to courses covering the history of science, the history of medicine, climate studies, MHS, the philosophy of science, and ethics and science.

- ANTH 2109, Food Politics in America; 2113W, Food, Identity, and Culture; 2114, Above and Below the Surface: The Caribbean between Climate Change and Tourism; 2160 or 2160W, Creating Community; 2220W, Human Landscapes; 2242 or 2242W, The Archaeology of Ancient Maya Civilization; 3141, Anthropology of Healing; 3143, Medical Anthropology; 3150W, Cognitive Anthropology; 3243 or 3243W, Ancient Maya Gods and Rulers; 3343, Biology and Culture of Race; 3345, Genetics in Society; 3347, Bioethics in Anthropology; 3622W, Classic Maya Language and Hieroglyphs; 4373, Health and Disease in Ancient Populations.
- ASIA 2630, Chinese Medicine.
- ASTR 2130, The Trial of Galileo and Its Background.
- CLAS 3030, Death, Disease, and Health in the Ancient World; 3730: The Roman to Medieval Near East: Caesarea Excavations, Israel.

- CMST 2800, Rhetoric and Civic Life; 2850, Science, Rhetoric, and Public Controversy; 3250W, Ethics in Science and Technology Communication; 3730 or 3730W, Communication, Culture, and Consciousness; 3740, Rhetoric of Medicine and Health; 3750, Rhetoric of the Body.
- CS 1151, Computers and Ethics.
- CSET 2130, Trial of Galileo and its Background; 2850, Science, Rhetoric, and Public Controversy; 3090, Introduction to Science and Technology Policy Analysis; 3100, Science Policy Bootcamp, from Concept to Conclusion; 3130, Rhetoric of Technoscience; 3240W, Pop Science: The Art and Impact of Popular Science Writing; 3241W, Ethical Questions in Communication at First Contact; 3250W, Ethics in Science and Technology Communication; 3261, Immigrant Scientists; 3281W, Scientists and the State; 3320W, Environmental Journalism; 3410, Telling Stories with Data; 3983: Special Topics in Bridging the Sciences and Humanities.
- EES 2114: Above and Below the Surface: The Caribbean between Climate Change and Tourism; 2150, Science, Risk, and Policy; 2309W, Mountains to the Sea: Perspectives on Society, Politics, and the Environment, 3333: Climate and Society: Drowning Cities.
- ECON 2170, Environmental Economics; 2350, Health Care Policy.
- ENGL 3720 or 3720W, Science Fiction; 3730 or 3730W, Literature and the Environment; 3896 or 3896W, Special Topics in Investigative Writing in America.
- ENVS: all three-credit-hour courses.
- GSS 2240, Introduction to Women’s Health; 2268, Gender, Race, Justice, and the Environment; 2270, Ecofeminism: Theory, Politics, and Action.
- HART 2815, Digital Heritage: Methods and Practice; 3233, Climate and Society: Drowning Cities.
- All three-credit-hour courses approved for Program G. Science, Medicine, and Technology in History,
- MATH 3000, History of Mathematics.
- MHS: All 1900-level or higher, three-credit-hour courses.
- PHIL 3601, Metaphysics; 3604, Gender and Sexuality; 3605, Contemporary Ethical Theory; 3606, Moral Problems; 3606W, Moral Problems; 3608, Ethics and Medicine; 3611, Environmental Philosophy; 3612, Ethics and Animals; 3616, Philosophy and the Natural Sciences.
- PSCI 2255, Public Policy Problems; 2256, Politics of Public Policy; 3253, Ethics and Public Policy; 3266, Climate Change Justice; 3268, American Health Policy.
- PSY 3605, Industrial and Organizational Psychology; 3635, Health Psychology; 3705, Human Sexuality.
- RLST 2811, Natural Science and the Religious Life; 3472, Religion and Climate Change; 3921, Ethics and Ecology; 3941, Religion, Science, and Evolution.
- RUSS 2273, Russian Science Fiction; RUSS 2273W, Russian Science Fiction.
- SCED: All three-credit-hour courses.
- PPS: All three-credit-hour courses approved for the Environmental, Resource, and Energy Policy Concentration in Public Policy Studies.
- PPS: All three-credit-hour courses approved for the Science, Technology, and Innovation Policy in Public Policy Studies.
- SOC: All three-credit-hour courses approved for the Environmental Sociology Core in Sociology.

Honors Program

Honors in CSET is a selective program of individual undergraduate work, supervised by a faculty adviser. Honors candidates propose, construct, and complete a project (written, visual, aural, digital, or a combination) that demonstrates the ability to communicate science, in depth, to a nonexpert audience.

Requirements for Admission to Honors in CSET

To be admitted to the Honors Program in CSET, a student must

- be a CSET major;
- have completed at least 21 credit hours of work that counts toward the CSET major;
- have a cumulative GPA of at least 3.0;
- have a GPA of at least 3.40 in all courses that count toward the CSET major.
- secure a faculty adviser and submit a proposal of the planned Honors project to the Director.

Requirements for Completion of Honors in CSET

To earn Honors or Highest Honors in CSET, a student must

- complete the requirements of the CSET major;
- complete at least 6 credit hours of work in any combination of CSET 3840, 3841, and 4998, of which at least 3 credit hours must be in CSET 4998;
- present a written and oral defense of the CSET 4998 project before a faculty examination committee;

- have a cumulative GPA of at least 3.0;
- have a GPA of at least 3.40 in all courses that count toward the CSET major.

Course of Study for Honors in CSET

Interested students may apply in the fall or spring of their junior year or the fall of the senior year. The application includes a one- to two-page proposal of the planned Honors project and the signature of the faculty member who will be the project adviser. The faculty adviser does not need to be a member of the CSET faculty.

An Honors candidate must pass an oral examination of the Honors project no later than the final week of classes in the students final semester. The examination committee is composed of the Honors project supervisor and two additional faculty members; at least one member of the examination committee must be a faculty member affiliated with the CSET program. The oral examination is public and should take approximately one hour, including time for questions from members of the committee. The faculty examination committee will determine by majority vote whether the student has earned Honors and whether said student should receive Honors or, for exceptional achievement, Highest Honors. Highest Honors is reserved for students whose projects are of dissemination quality and whose oral examinations are completed at the highest level.

Minor in Communication of Science and Technology

The minor in Communication of Science and Technology consists of six courses, totaling a minimum of 18 credit hours, distributed as follows:

1. CSET Core (requirement #1 of the Standard Track);
2. One Telling Scientific Stories course (as defined in requirement #2 of the Standard Track);
3. One Bridging the Sciences and Humanities course (as defined in requirement #3 of the Standard Track);
4. One three-credit-hour natural science course (as defined in requirement #4 of the Standard Track).

Additional notes for the minor in CSET:

- Students in the College of Arts and Science must count at least 15 credit hours for the minor in CSET that are not also used to fulfill any program requirements for any other major or minor in the College of Arts and Science.
- A course can be used only once to fulfill a single CSET requirement, even if it is eligible under more than one CSET requirement.
- Requirement #4 cannot be fulfilled with an engineering course.

Communication Studies

Program of Concentration in Communication Studies

Minor in Communication Studies

CHAIR Jeffrey A. Bennett

DIRECTOR OF UNDERGRADUATE STUDIES Isaac West

PROFESSOR EMERITUS Kassian A. Kovalcheck

PROFESSORS Jeffrey A. Bennett, Bonnie J. Dow, John M. Sloop, Paul H. Stob

ASSOCIATE PROFESSORS Vanessa B. Beasley, Claire Sisco King, Isaac West

ASSISTANT PROFESSOR Bohyeong Kim

PRINCIPAL SENIOR LECTURER M. L. Sandoz (Director of Forensics)

SENIOR LECTURERS Neil Butt, John P. Koch (Director of Debate), Courtney C. Travers, Dustin A. Wood

COURSES OFFERED: CMST

The Department of Communication Studies offers a major and a minor that include courses in the following areas: historical and theoretical foundations of communication study, argumentation and oral advocacy, the historical and critical study of public discourse and deliberation, and the analysis of media and culture.

The Vanderbilt University Debate Team participates in international, national, and regional competitions.

Program of Concentration in Communication Studies

Communication studies explores purposive human communication. The Department of Communication Studies is particularly devoted to an understanding of public discourse in the broadest sense, with an emphasis on the role of persuasion in civil society. To that end the subjects of study range from political discourse to commercial advertisement, from the history of rhetoric to the impact of mass media, from criticism of public oratory to issues of freedom of speech. The department offers courses involving practice, criticism, and theoretical analysis.

Education in these areas has traditionally produced citizen advocates who enter public life in business, law, journalism, and communication.

A major in communication studies requires 30 credit hours of course work. The requirements and options for the major are as follows:

1. Two courses (6 credit hours) in Foundations: 1002 and 1500.
2. One course (3 credit hours) in Argumentation and Advocacy: 2100, 2110, 2120.
3. Three courses (9 credit hours) in Public Discourse and Deliberation: 2750, 2800, 2850, 3000, 3100, 3110, 3120, 3140, 3150, 3200, 3600, 3700; one of which must be 2800, 3000, or 3600.
4. Three courses (9 credit hours) in Culture, Theory, and Critique: 2432, 2950, 3620, 3620W, 3710, 3720, 3730, 3730W, 3740, 3750, 3760, 3800; one of which must be 2950, 3620/3620W, or 3730/3730W.
5. One elective course (3 credit hours), selected from the courses listed in requirements 2 through 4, which has not been counted toward those requirements.

1111, 3840, 3850, 3890, 4940, and 4941 may be counted toward the major in the category corresponding to the topic of the course, with the permission of the director of undergraduate studies.

Minor in Communication Studies

A minor in communication studies requires completion of 18 credit hours from the following requirements and options:

1. Two courses (6 credit hours) in Foundations: 1002 and 1500.
2. One course (3 credit hours) in Argumentation and Advocacy: 2100, 2110, 2120.
3. Three courses (9 credit hours) from requirements 3 and 4 in the major.

1111, 3840, 3850, 3890, 4940, and 4941 may not be counted toward the minor.

Earth and Environmental Sciences

Program of Concentration in Earth and Environmental Sciences

Honors in Earth and Environmental Sciences

Minor in Earth and Environmental Sciences

Licensure for Teaching

CHAIR John C. Ayers

DIRECTOR OF UNDERGRADUATE STUDIES Lily L. Claiborne

DIRECTOR OF GRADUATE STUDIES David J. Furbish

PROFESSORS EMERITI Leonard P. Alberstadt, George M. Hornberger, Calvin F. Miller, Molly Fritz Miller, Arthur L. Reesman, William G. Siesser, Richard G. Stearns

PROFESSORS John C. Ayers, Ralf Bennartz, David J. Furbish, Steven L. Goodbred, Guilherme Gualda,

ASSOCIATE PROFESSORS Larisa R. G. DeSantis, Jonathan M. Gilligan, Maria Luisa Jorge, Jessica L. Oster

ASSISTANT PROFESSORS Hiba Baroud, Simon A. F. Darroch, Ravindra Duddu, Kristen E. Fauria, Jesus Gomez-Velez, Neil P. Kelley, Lin Meng

RESEARCH ASSISTANT PROFESSORS Christopher P. Vanags

PRINCIPAL SENIOR LECTURERS Lily L. Claiborne, Daniel J. Morgan

COURSES OFFERED: EES

The Earth and environmental sciences are aimed at understanding Earth's governing processes—how they operate and interact—as well as interpreting Earth's dynamic history—its age and origin as recorded in rocks and the landscape— and finally, at understanding how geological processes affect modern environmental and ecological systems, including humans. Among the natural sciences, ours is the quintessential interdisciplinary science, providing vital perspective on how Earth's physical and geochemical template simultaneously sustains and threatens life, and influences human interactions with Earth.

The Department of Earth and Environmental Sciences (EES) offers an integrated Earth and Environmental Sciences undergraduate major leading to the B.A. degree. Students majoring in EES take a core set of science courses with lab, computational, and field components, then propose a course plan that creates an area of concentration in solid Earth, Earth surface, or environmental science while maintaining breadth across the discipline. The comparatively small size of the faculty and student body allows many opportunities for faculty-student interaction. Students use the major as preparation for graduate study, for careers in environmental science, geology, and natural resource and energy management, and for related fields such as land use planning, teaching, conservation, business, law, or engineering.

Research programs in the department, which in many cases involve students, employ field, analytical, and experimental methods. A wide variety of Earth processes are investigated, ranging from the migration of fluids and generation of magmas in the Earth's crust, to the movement of mass and energy across land, ocean, and atmosphere, to the evolution of life and ecosystems, to the impacts of humans on the environment. Study areas, in addition to Tennessee, include the southwestern United States, the Pacific northwest, Florida, Colorado, Antarctica, South Asia, Brazil, Italy, Greenland, Peru, Namibia, the Bahamas, Australia, and New Zealand.

For students with primary interests in environmental issues, an EES major or minor can be an excellent foundation for future work in this field. Students are encouraged to pair the natural science training they will gain in Earth and Environmental Sciences with Climate and Environmental Studies, Communication of Science and Technology, Environmental Sociology, or other interdisciplinary or non-science focused programs to gain the full range of experience and skills desired.

Program of Concentration in Earth and Environmental Sciences

The EES major is designed to provide a solid grounding in the integrated Earth and environmental sciences while allowing flexibility in the particular focus. The major is organized into five parts, beginning with one of three introductory courses that serve as entry points. The second part involves three core courses that provide all majors with a common background in methods and ways of thinking in Earth and environmental sciences. At least one core

course must be completed before students may enroll in the more advanced focus courses of part three. Also, prior to taking any focus courses, students must submit a course plan for parts three and four that explains their choice of advanced courses based on expressed goals and interests. The course plan should be designed in consultation with a faculty adviser and must be approved by the director of undergraduate studies. In most cases, students will also declare the major at this time. The third part of the major defines a focus in the general areas of solid Earth, Earth surface, or environmental science. A brief description of each focus and a list of most relevant courses are given below. The fourth part follows the focus and allows three qualified electives to pursue depth in the focus or broaden to include another area of concentration. The fifth component of the major is a 1 credit hour seminar that serves as a capstone for senior students. In addition to the major, qualified students may elect to participate in the Honors Program designed for highly motivated students who want to pursue research as undergraduates. Opportunities for research may be available to other students outside of the Honors Program.

At least 37 credit hours toward the major are required as follows:

1. Introductory Course (3+1 credit hours each): 1510/1510L or 1030/1030L, or 1081/1081L	4
2. Core Courses (3 or 4 credit hours each): 2510, 2550, and 2580* *Note:* Math 1100, 1201, or 1301 are prerequisite or corequisite for 2580. Math 1100 provides the basic calculus skills required for the EES major but does not qualify students for any more advanced math courses at Vanderbilt. Math 1301 is recommended for students interested in taking additional math courses or calculus-based physics that may be required by some graduate programs. *Students with physics credit may be able to replace this with a higher level physics-based EES course. Discuss with EES DUS before enrolling.	11
3. Focus Courses with Lab (4 credit hours each): Three of the following per the approved course plan: 3220, 3260, 3280, 3310, 3330, or 3340	12
4. Three electives, at least two at 4000 level (3 or 4 credit hours each): An additional 3000-level Focus course, or 4233, 4283, 4300, 4420, 4440, 4550, 4600, 4650, 4680, 4750, 4760, 4820, 4830, or 4891 *Note:* Does not include Directed and Independent Studies: 3841, 3842, 3851, 3852, 3880, 3881, 4996, 4998, 4999	9–10
5. Senior Seminar: 4961	1
Total hours:	37-38

Additional supporting science and math courses, including at least one semester each of chemistry and physics, are highly recommended for the major and should be taken early in a student's academic career. Additional courses in chemistry, physics, math, computer science, and/or biological sciences are also recommended and may be required for admittance into graduate school or for employment as a scientist. Minors or double majors in other STEM fields are encouraged.

Students should discuss additional supporting sciences and math with their EES faculty adviser or the DUS, but recommended selections may include:

Chemistry (1601/1601L and 1602/1602L) Physics (1601/1601L and 1602/1602L)

Calculus (Math 1200/1201, 1300/1301, or higher)

Biological Sciences (1100/1100L, 1103, 1510/1510L, 1511/1511L, 2218, 2219, or 2238/2238L)

Options for Area of Focus

In-depth Earth and Environmental Sciences courses can be chosen to define a focus area within EES. Students should consult with their major adviser about choosing a focus area and associated course options. Students may also formulate an individualized focus area that may incorporate components of several areas to maintain breadth. All parts of the Earth and its environment are interconnected, and the integrated Earth and Environmental Science major allows students to create a comprehensive understanding of the cycling of energy and materials through Earth's four spheres (lithosphere, hydrosphere, atmosphere, and biosphere) while also developing some more specific expertise through a Focus. Further descriptions of these focus options and recommended courses can be found in the EES major handbook on the EES department homepage.

Solid Earth Focus

This focus augments the integrated Earth and environmental sciences core by further considering the physical and chemical structure of the Earth and the dynamic processes affecting these, as recorded in rocks and minerals. This includes aspects of geology, geochemistry, geophysics, and volcanology. Focus and elective courses appropriate for Solid Earth include: 3260, 3330, 3340, 3865, 4300, 4420, 4440, 4550, 4600, 4830.

Earth Surface Focus

This focus augments the Earth and environmental sciences core by further considering interactions between Earth's land surface, oceans, and atmosphere, for example governing how rivers, mountains, coasts, or the climate operate and evolve with time. Earth surface systems also define the planet's critical zone that supports life and its ecosystems. Focus and elective courses appropriate for Earth Surface include: 3220, 3280, 3330, 3865, 3280, 4300, 4420, 4440, 4600, 4550, 4650, 4680.

Environmental Focus

This focus augments the Earth and environmental sciences core by further considering aspects of the hydrosphere, biosphere, atmosphere, and coupled human-environment systems, both present and past, through a lens of Earth's changing climate. Life on Earth impacts and is impacted by Earth's environments and is therefore central to this focus. Focus and elective courses most appropriate for Environmental include: 3220, 3280, 3310, 3480, 4238, 4300, 4440, 4480, 4650, 4680, 4820, 4890, 4750, 4760.

Honors in Earth and Environmental Sciences

The EES Honors Program provides research experience and mentoring in preparation for a career or graduate studies in Earth and environmental sciences. Interested students should apply to the undergraduate adviser for entry into the Honors Program fall semester, junior year. A grade point average of 3.3 or higher both cumulatively and in courses that count toward the EES major is required for admission to the Honors Program.

Working closely with a faculty adviser, students in the Honors Program complete a research project of interest to both the student and faculty member during the junior and senior years. In order to graduate with honors in EES, a student must: (1) maintain a 3.3 grade point average both in the EES major and cumulatively; (2) complete the required courses for the EES major; (3) complete Senior Honors Seminar (4996, 4997) and Senior Honors Research (4998, 4999); (4) satisfactorily present the results of his/her research in written form as a senior thesis to two members of the faculty and orally to students and faculty of the department.

Minor in Earth and Environmental Sciences

The minor in EES provides students with a broad background in Earth processes, systems, and history, and an introduction to environmental issues. This background is highly relevant to many different fields of endeavor. The minor does not fully prepare students for graduate studies or employment as Earth or environmental scientists, though it could do so paired with another relevant STEM major. Students should consult with the director of undergraduate studies about how the minor in EES fits with their career or graduate school interests.

The minor consists of at least five courses (at least 17 credit hours; EES 1510/1510L, 1030/1030L, and EES 1081/1081L each count as one course). Students are encouraged to choose courses based on their interests and career plans and to discuss course selection with the director of undergraduate studies. No more than two 1000-level courses count toward the minor. Two courses with labs are required; one must be numbered above 2000. No credit toward the minor is given for EES 3841–3842 or 3851–3852.

Licensure for Teaching

EES majors may choose a second major in science education which includes teaching licensure, a prudent choice if interested in teaching. Peabody offers a fifth-year master's program for science majors interested in teaching. Upon graduating with a B.A. in EES, EES majors in the fifth-year program would spend the next summer and academic year earning their M.Ed. and teaching licensure.

Students seeking teacher certification in science disciplines at the secondary level should refer to the chapter on Certification for Teaching in the Peabody College section of the Undergraduate Catalog. Please contact Professor Heather Johnson, coordinator of science secondary education, at heather.j.johnson@vanderbilt.edu for more information.

Economics

Program of Concentration in Economics

Minor in Economics

Honors Program

Program of Concentration in Economics and History

Licensure for Teaching

CHAIR Kamal Saggi

VICE CHAIR Mattias Polborn

DIRECTOR OF UNDERGRADUATE STUDIES Rupinder Saggi

DIRECTOR OF GRADUATE STUDIES Brian Beach

PROFESSORS EMERITI Kathryn H. Anderson, Jeremy Atack, William W. Damon, Andrew F. Daughety, Robert A. Driskill, Malcolm Getz, Cliff J. Huang, Andrea Maneschi, Jennifer F. Reinganum, Clifford S. Russell, John J. Siegfried, George H. Sweeney, Anthony M. Tang, John A. Weymark

PROFESSORS Eric W. Bond, Christopher (Kitt) Carpenter, William J. Collins, John Conley, Benjamin Eden, Kevin X. D. Huang, Gregory Huffman, Atsushi Inoue, Tong Li, Mattias Polborn, Peter L. Rousseau, Kamal Saggi, Yuya Sasaki, W. Kip Viscusi, Myrna Wooders

PROFESSORS, RETIRED Stephen Buckles, Diana N. Weymark

ASSOCIATE PROFESSORS Brian Beach, Andrea Moro, Joel Rodrigue, Lesley J. Turner

ASSISTANT PROFESSORS Peter Bils, Adam Blandin, Marcus Dillender, Malin Hu, Gregory Leo, Christopher Li, Michelle Marcus, Kathleen McKiernan, Analisa Packham, Sarah Quincy, Sarah Ridout, Maria Titova, Matthew Zaragoza-Watkins, Ariell Zimran

PRINCIPAL SENIOR LECTURERS Ana Regina Andrade, Christina H. Rennhoff, Rupinder Saggi

SENIOR LECTURERS Kent Dolezal, Hojjatallah Ghandi, Heather Luea, Karim Nchare, Zaruhi Sahakyan

COURSES OFFERED: ECON

The Department of Economics offers an undergraduate major and minor in economics. Qualified economics majors may also elect to take graduate courses or participate in honors work.

The department participates with the Department of History in a concentration in economics and history. Other economics-related minors are discussed under the Undergraduate Business Minor.

Economics 1010 and 1020 are prerequisites to all courses numbered above 2000, except Economics 2220 which only requires Economics 1010.

Program of Concentration in Economics

The requirements for the major include completion of at least 33 credit hours in economics courses, including 1010, 1020, 1500 or 1510 (or Math 2820L with Math 2810 or Math 2820), 3012, 3022, and 3032 or 3035. At least 9 credit hours must be in courses numbered above 3035. At least 15 credit hours that count toward the economics major must be taken at Vanderbilt. Undergraduate Business Minor (BUSA) elective courses do not count toward the economics major.

Economics 1111 may be counted as an elective. No more than 3 credit hours of independent study may be included in the minimum 33 credit hours required for the major.

Mathematics Prerequisite

MATH 1201 (or MATH 1301) is a prerequisite for Economics courses numbered 3000 and above.

Minor in Economics

The minor in economics requires 21 credit hours, including 1010, 1020, 1500 or 1510 (or Math 2820L with Math 2810 or Math 2820), 3012, and 9 credit hours of electives. At least one elective must be numbered above 3015.

Students who complete either Economics 3032 or 3035 with Math 2820L and Math 2810 or Math 2820 as a prerequisite need not take Economics 1500 or 1510. Undergraduate Business Minor (BUSA) elective courses do not count toward the economics minor.

Honors Program

An honors program is available in economics. This program is designed for highly motivated students interested in doing independent research. Students who meet the College of Arts and Science’s requirements for honors candidacy as set forth elsewhere in this catalog should consult the director of undergraduate studies no later than the fall term of their junior year. Honors candidates must complete 36 credit hours in economics, including the 18 credit hours of courses required of all economics majors. Honors candidates should complete 3032 or 3035 before senior year. In addition, the Honors Program requires completion of (1) Economics 3698 Junior Honors Research (1 credit hour), (2) Economics 3851–3852 Senior Thesis (6 credit hours), culminating in a written thesis, (3) Economics 4981–4982 Honors Seminar (2 credit hours), (4) 9 credit hours of electives including at least 6 credit hours in Economics courses above 3035. Honors candidates are required to write a senior thesis and to defend it in an oral examination. On satisfactory completion of this program, a student will graduate with honors or with highest honors in economics.

Program of Concentration in Economics and History

This is an interdisciplinary program split between Economics and History that provides a more focused program of study while requiring fewer credit hours than a double major in the two fields. The program consists of 45 credit hours of course work of which 9 credit hours are from a common economic history core and the remaining 36 credit

hours are evenly divided between Economics and History. Students are expected to observe course-specific requirements in each department. The details are spelled out below under Economics and History.

Licensure for Teaching

Candidates for teacher licensure in economics at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Economics and History

The joint major in economics and history makes an important contribution to liberal education at Vanderbilt by helping students understand the origins and organization of modern society. It also provides a unique preparation for careers in business, the professions, and other fields by combining all the analytical tools of the regular economics major with history's emphasis on clear and effective writing and on developing skills in gathering, assessing, and synthesizing information. The program consists of 45 credit hours of course work: 9 credit hours in an economic history core, and an additional 18 credit hours in economics and 18 in history. Students declare their major through the Department of History office.

Note: One semester of calculus is a prerequisite for ECON 1500 and 1510. MATH 1201 (or MATH 1301) is a prerequisite for Economics courses numbered 3000 and above.

The description of the Concentration in Economics and History below will apply to students who matriculate at Vanderbilt in August 2018 and thereafter.

Course work for the major is distributed as follows:

Economic History Core (9 credit hours)

Three of the following courses, one of which must be an economics course above 3000:

HIST 1039, 1352, 1600, 1640, 1660, 1665, 2106, 2107, 2138, 2150, 2255, 2660, 2700, 2710, 3190, 3200, ECON 2150, 3150, 3160, RUSS 2810.

Note: ECON 3012 is a prerequisite for ECON 3150, and 3160.

Economics (18 credit hours)

ECON 1010, 1020, 1500 or 1510, 3012, 3022; one ECON course above 3022 not included in the economic history core.

Note: The following course sequences may be substituted for ECON 1500 or 1510: Option 1: MATH 2810, 2820L, and either ECON 3032 or 3035.

Option 2: MATH 2820, 2820L, and either ECON 3032 or 3035. In these cases, ECON 3032 or 3035 will also count as an elective.

History (18 credit hours)

No more than 3 credit hours of AP or IB credit in history courses may count toward this total.

1. History 3000W or 3980; must be taken by the end of the junior year. 3980 is limited to second-semester juniors who have been admitted to the Honors Program. Students entering the Honors Program who have already earned credit for 3000W will receive elective credit for that course.
2. History 4960 (prerequisite: History 3000W), or History 4980–4981 (available only to students in the Honors Program). *Note:* At the discretion of the director of honors and the director of undergraduate studies in history, a student who has earned credit for 4980 but does not take 4981 may be considered to have fulfilled the capstone requirement for the major.
3. Four other history courses. Electives may include any courses, not used to satisfy any of the above requirements, offered by the Department of History, including any courses listed for the history major.

Honors Program (9 more credit hours)

Students apply to the Honors Program in History in the first semester of the junior year.

54 credit hours: students will take the four-course honors sequence, HIST 3980, 4980–4981, 4999. Because HIST 4980–4981 satisfies the capstone requirement, honors students will not be required to take HIST 4960, though they may enroll for 4960 as an elective. Students will write an interdisciplinary thesis under the direction of an adviser from each department.

Electrical and Computer Engineering

CHAIR Bennett A. Landman

ASSOCIATE CHAIR Robert A. Reed

DIRECTOR OF UNDERGRADUATE STUDIES W. Timothy Holman

DIRECTOR OF GRADUATE STUDIES Richard Alan Peters II

DIRECTOR OF GRADUATE RECRUITING Jack H. Noble

PROFESSORS EMERITI Arthur J. Brodersen, James A. Cadzow, Jimmy L. Davidson, J. Michael Fitzpatrick, Kenneth F. Galloway, Dennis G. Hall, Robert W. House, Kazuhiko Kawamura, Robert A. Weller, Francis M. Wells, Edward J. White, James E. Wittig

PROFESSORS Bharat L. Bhuva, Robert E. Bodenheimer Jr., Joshua D. Caldwell, Benoit M. Dawant, Mark Does, Philippe M. Fauchet, Daniel M. Fleetwood, Michael Goldfarb, William A Grissom, Weng Poo Kang, Gábor Karsai, Xenofon D. Koutsoukos, Bennett A. Landman, Akos Ledeczi, Lloyd W. Massengill, Sandeep Neema, Sokrates T. Pantelides, Robert A. Reed, Nilanjan Sarkar, Douglas Schmidt, Ronald D. Schrimpf, Janos Sztipanovits, Robert J. Webster III, Sharon M. Weiss

PROFESSOR OF THE PRACTICE Walter Collett

RESEARCH PROFESSORS Michael L. Alles, Theodore A. Bapty, Zhaohua Ding, James McBride, Arthur F. Witulski

ASSOCIATE PROFESSORS Audrey K. Bowden, Abhishek Dubey, Taylor Johnson, Richard Alan Peters II, Jason G. Valentine, Greg Walker, D. Mitchell Wilkes

RESEARCH ASSOCIATE PROFESSORS W. Timothy Holman, Jeffrey S. Kauppila, Brian D. Sierawski

ASSISTANT PROFESSORS David Braun, Catie Chang, Mona Ebrish, Dariot Englot, Yuankai Huo, Justus Ndukaife, Jack H. Noble, Ipek Oguz

RESEARCH ASSISTANT PROFESSORS Shunxing Bao, Christine McGahan, Kurt Schilling, David Smith

ADJOINT PROFESSORS Arnold Burger, William Hofmeister, Steven Kosier

ADJOINT ASSOCIATE PROFESSOR Pierre-Francois D'Haese

ADJOINT ASSISTANT PROFESSORS Shuren Hu, Arto Javaninen, Stephanie Weeden-Wright

ADJUNCT PROFESSORS Ashok Choudhury, Orest Glembocki, Roberg Magruder

ADJUNCT ASSOCIATE PROFESSOR John Hutson

ADJUNCT ASSISTANT PROFESSORS Amy Kauppila, Andrew L. Sternberg

ADJUNCT INSTRUCTOR John Beck

INSTRUCTOR Ashwaq Amat

POSTDOCTORAL RESEARCH SCHOLARS Effat Farhana, Andrew McNeil

COURSES OFFERED: ECE

The study of electrical and computer engineering has been primarily responsible for the information technology revolution that society is experiencing. The development of large-scale integrated circuits has led to the development of computers and networks of ever-increasing capabilities. Computers greatly influence the methods used by engineers for designing and problem solving.

The curriculum of the electrical and computer engineering major is multifaceted. It provides a broad foundation in mathematics, physics, and computer science and a traditional background in circuit analysis and electronics.

Several exciting areas of concentration are available, including photonics and nanomaterials, microelectronics, embedded computing, cyber-physical systems, signal and data processing and medical systems. Students receive an education that prepares them for diverse careers in industry and government and for postgraduate education.

Undergraduate Honors Program. With faculty approval, junior and senior students may be accepted into the Honors Program. To achieve honors status, the student must:

1. achieve and maintain a minimum GPA of 3.5.
2. complete 3 hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861) with final written report.
3. complete 6 hours of ECE program elective credit from the following list:
    a. up to 3 additional hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861), or
    b. Design Domain Expertise courses beyond the one course required by the program, or
    c. 5000-level ECE or CS courses.

The diploma designation is Honors in Electrical and Computer Engineering.

Facilities. Electrical and computer engineering supports undergraduate laboratories emphasizing the principal areas of the disciplines: analog and digital electronics, microcomputers, microprocessors, microelectronics, and instrumentation. In addition, several specialized facilities are available for graduate research: the advanced carbon nanotechnology and diamond labs, the Institute for Software Integrated Systems, the Institute for Space and Defense Electronics, the Medical Image Processing Laboratory, the Center for Intelligent Systems and Robotics Laboratories, the Embedded Computer Systems Laboratory, and biomedical, biosensing, and photonics laboratories.

The work in electrical and computer engineering is supported by a variety of computers and networks, including the high-performance computing facilities of the Advanced Computing Center for Research and Education. Vanderbilt is one of the founding partners in the Internet II initiative.

Curriculum Requirements

The B.E. in electrical and computer engineering requires a minimum of 122 hours, distributed as follows:

1. Mathematics (18 hours). Required courses: MATH 1300, 1301, 2300, 2400, 2810.
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L; MSE 1500, 1500L or CHEM 1602, 1602L.
3. Engineering Fundamentals (6 hours). Required courses: ES 1401, 1402, 1403, ES 2100W.
4. Culminating Design Experience (7 hours). Required courses: ECE 4950, 4951, 4959.
5. Electrical and Computer Engineering Core (21 hours). Required courses: CS 1100 or 1101 or 1104; CS 2201 or 2204; ECE 2112, 2112L, 2123, 2123L (or CS 2123, 2123L), ECE 2214, 3235, 3235L.
6. Electrical and Computer Engineering Electives (21 hours). To comprise:
    a. At least 15 hours selected from the Gateway courses and ECE and CS Depth courses listed below.
    b. other courses listed in the Electrical and Computer Engineering Areas of Concentration below, or ECE or CS courses numbered above 3000 (including ECE 3860, 3861 and CS 3860, 3861).

Additional requirements for (a) and (b) include:

- at least 9 hours completed in one of the four Areas of Concentration listed below.
- at least 6 additional hours completed in a second distinct Area of Concentration listed below.
- at least one Design Domain Expertise course as designated below taken before ECE 4951.
- courses with associated labs require completion of both the lecture and lab portions to count as Electrical and Computer Engineering Electives.
- courses count in only one Area of Concentration; they cannot be double counted

7. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.

8. Technical electives (12 hours).

    a. (6-12 hours). At least 6 hours must be taken from this list of approved engineering technical electives: (excluding all School of Engineering courses numbered 2860); BME; CHBE (except 2150, 2900W); CE; CS (except 1000, 1101, 1103, 1104, 1151); ECE (above basic requirement in sections 5 and 6 above); ENGM 3010; ENVE; ES 3300; ME; MSE (except 1500, 1500L); NANO 3000; SC 3250, 3260
    b. (0–6 hours). Up to 6 hours may be taken from this list of optional technical electives: ENGM 2160, 2210, 3000, 3100, 3300, 3650, 4500; MSE 1500, 1500L (if CHEM 1602, 1602L is used for basic science requirement); Astronomy (except 1010, 1111, 2130); Biological Sciences (except 1111); Chemistry (except 1010, 1020, 1601, 1602, 1111); Earth and Environmental Sciences (except 1080, 1111, 2150); Mathematics 2410 and above; Neuroscience 2201, 3269, 4961; Physics above 2000; Psychology 2100, 3780

9. Open Elective (3 hours).

Electrical and Computer Engineering Areas of Concentration

–	Photonics & Nanomaterials	Microelectronics	Embedded Computing & Cyber-Physical Systems	Signal, Image, Data, and Medical Systems
Gateway Courses†	ECE 3233	ECE 3233	CS 3251 ECE 2218/2218L‡ ECE 2281/2281L‡	ECE 4356* ECE 4363
ECE and CS Depth Courses	ECE 4283 ECE 4284 ECE 4288* ECE 4334* ECE 4335	ECE 4267 ECE 4268 ECE 4275 ECE 4283 ECE 4284 ECE 4287 ECE 4289 ECE 4334* ECE 4335 ECE 4380* ECE 4385*	CS 3265 CS 3274* CS 4277 CS 4278* CS 4279* CS 4284* CS 4285 CS 4288* ECE 4257 ECE 4275 ECE 4356* ECE 4358* ECE 4371* ECE 4375/4375L‡* ECE 4377* ECE 4383‡ ECE 4385*	CS 3251 CS 4260 CS 4262 CS 4266* CS 4269* ECE 4252 ECE 4286 ECE 4353* ECE 4354*
Non-ECE and Non-CS Depth Courses	BME 4100 ME 4265 NANO 3000 PHYS 2660 PHYS 2210 PHYS 3640		ME 4271	BME 3302 BME 4400 BME 4420 ME 3204

†Gateway courses provide recommended background and/or prerequisites for the Area of Concentration Depth courses.

*Designates a Design Domain Expertise course.

‡Indicates a crosslisted course also offered by the Department of Computer Science.

Double majors have special curricula that require more than 122 hours and a different distribution of electives. See the ECE webpage or the ECE double major adviser for these curricula.

A double major in Electrical and Computer engineering and Biomedical Engineering is offered as a unitary BME-ECE curriculum, which is described in the Biomedical Engineering section of the catalog under its curriculum requirements. It requires a minimum of 130 semester hours.

Undergraduates in electrical and computer engineering, including double majors in electrical and computer engineering, may apply the pass/fail option only to courses taken as open electives subject to the school requirements for pass/fail.

Specimen Curriculum for Electrical and Computer Engineering

		Semester hours	
		FALL	SPRING
SOPHOMORE YEAR			
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CS 2201 or 2204	Program Design and Data Structures	3	–
ECE 2112, 2112L	Circuits and Laboratory	4	–
ECE 2123, 2123L	Digital Systems and Laboratory	–	4
ECE 2214	Analog Circuits and Systems	–	3
	Liberal Arts Core	3	3
	ECE Program Elective or Technical Elective‡	–	3
		17	17
JUNIOR YEAR			
MATH 2810	Probability and Statistics for Engineering	3	–
ES 2100W	Technical Communications	–	3
ECE 3235, 3235L	Electronics I and Laboratory	4	–
	ECE Program Electives‡‡	3	6
	Technical Elective	–	3
	Technical Elective or ECE Program Elective‡	3	–
	Liberal Arts Core	3	3
		16	15
SENIOR YEAR			
ECE 4950	Program and Project Management for ECE	3	–
ECE 4951	Electrical and Computer Engineering Design	–	3
ECE 4959	Senior Engineering Design Seminar	1	–
	ECE Program Electives‡‡	6	3
	Liberal Arts Core	3	–
	Technical Electives	3	3
	Open Elective	–	3
		16	12

‡CS 3251 (Intermediate Software Design) is recommended in spring of the sophomore year as preparation for

advanced computer science courses, with a technical elective taken in fall of the junior year. Otherwise, students may choose a technical elective in spring of the sophomore year and an ECE program elective in fall of the junior year.

‡‡As described in Electrical and Computer Engineering Degree Requirements section 6. At least one Design Domain Expertise (DE) course required prior to ECE 4951.

Minor in Electrical and Computer Engineering

The minor in electrical and computer engineering is available to all students except those majoring or minoring in computer engineering or electrical and computer engineering. The electrical and computer engineering minor requires a minimum of 17 hours of courses, including the completion of all laboratory corequisites for courses selected for the minor, distributed as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Digital Systems: (ECE 2123, 2123L or CS 2123, 2123L) or Computer Architecture: (ECE 2281, 2281L or CS 2281, 2281L)	4 hours
3. Circuits: ECE 2112, 2112L	4 hours
4. At least 6 additional hours of ECE courses numbered above 2000 (excluding ECE 3860, 3861)	6 hours
Total:	17 hours

English

Program of Concentration in English and American Literature

Minor in English: Literature

Minor in English: Creative Writing

General Requirements and Advice for Majors and Minors in All Programs

Honors Program

Licensure for Teaching

CHAIR Jennifer Fay

ASSOCIATE CHAIR Anthony Reed

DIRECTOR OF UNDERGRADUATE STUDIES Mark Schoenfield

DIRECTOR OF CREATIVE WRITING PROGRAM Major Jackson

DIRECTOR OF GRADUATE STUDIES Candice Amich

PROFESSORS EMERITI Houston Baker, Kate Daniels, Paul Elledge, Lynn E. Enterline, Roy K. Gottfried, Chris Hassel Jr., Mark Jarman, Michael Kreyling, Lorraine López, Leah S. Marcus, John F. Plummer III, Hortense Spillers, Cecelia Tichi, Mark A. Wollaeger

PROFESSORS Jay Clayton, Colin (Joan) Dayan, Tony Earley, Jennifer Fay, Teresa A. Goddu, Major Jackson, Vera Kutzinski, Emily Lordi, Lorrie Moore, Dana D. Nelson, Bridget Orr, Anthony Reed, Nancy Reisman, Allison Schachter, Mark Schoenfield, Kathryn Schwarz, Rachel Teukolsky

ASSOCIATE PROFESSORS Candice Amich, Rick Hilles, Jessie Hock, Scott Juengel, Ben Tran

ASSISTANT PROFESSORS Ajay Batra, Lydia Conklin, Alex Dubilet, Shoshana Feldman, Huan He, Didi Jackson, Carlos Nugent, ZZ Packer, Akshya Saxena

PRINCIPAL SENIOR LECTURERS Gabriel Briggs, Elizabeth Covington, Andrea Hearn, Roger Moore, Elizabeth Meadows, Justin Quarry

SENIOR LECTURERS Jeong Oh Kim, Judith Klass

RESEARCH PROFESSORS Jonathan Lamb

WRITERS IN RESIDENCE Lisa Dordal, Sheba Karim, Amanda Little, Sandy Solomon

COURSES OFFERED: ENGL

The Department of English offers three distinct programs that allow students to individualize their studies while acquiring the breadth of knowledge and skills of the traditional English major. The curriculum provides courses in the history of British and American literature, film, digital media, Anglophone literatures of other countries, literary theory, and expository as well as creative writing. These diverse courses reflect the interests of students and faculty and the expanding area of English literary study. Students use the concentration in English as a foundation for careers ranging from education, law, business, and government to public relations and the media industry-anywhere that analytic, reading, and writing skills are valued-and as preparation for postgraduate work in literature. The department also regards helps students become lifelong readers of literature and culture.

Programs in England, Scotland, Australia, and around the world offer opportunities for study and travel that enrich a student's education. The Gertrude Vanderbilt and Harold S. Vanderbilt Visiting Writers series annually sponsors public lectures, readings, and other occasions where English majors hear and meet celebrated poets, novelists, and critics. Many majors write for and serve on the editorial boards of campus publications including the *Hustler* , the *Vanderbilt Review,* a distinguished collection of creative writing, and *Vanderbilt Lives*, an annual publication of creative non-fiction by Vanderbilt Undergraduates. An English major listserv alerts students to employment opportunities, internships, and study abroad programs in addition to those offered through Vanderbilt University.

Program of Concentration in English and American Literature

Program I: Literary Studies (30 credit hours)

Students pursue a broad range of interests through a flexible approach to the study of literature. 30 total credit hours including:

1. 6 credit hours in History (literature before 1800)
2. 6 credit hours of Diverse Perspectives (ethnic American or Anglophone literature)
3. 18 additional credit hours of electives in English, chosen from the courses that count toward the major

A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the requirement in numbers 1, 2, and 3 above are described below under General Requirements and Advice for Majors and Minors in All Programs.

Program II: Creative Writing (30 credit hours)

Students develop their creative writing while acquiring an overview of English literature. 30 total credit hours including:

1. 12 credit hours of 3000-level creative writing workshops in at least two different genres (from among: Nonfiction 3210, 3220; Fiction 3230, 3240; Poetry 3250, 3260). Admission to these courses is by consent of instructor.

2. 3 credit hours in History (literature before 1800)
3. 3 credit hours in Diverse Perspectives (ethnic American or Anglophone literature)
4. 12 credit hours from courses that count toward the English major (see below), which may include one additional creative writing workshop (beyond the four required in number 1, above) or one course in another discipline (with approval of the director of undergraduate studies)

A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the requirement in numbers 2, 3, and 4 above are described below under General Requirements and Advice for Majors and Minors in All Programs.

Program III: Specialized Critical Studies (30 credit hours)

Students design their own specialized course of study with a descriptive name and develop a contract of courses for it.

30 total credit hours including:

1. 12 credit hours of course work concentrated in a particular period (e.g., nineteenth-century American), genre, or movement (e.g., the novel), an aspect of intellectual history (e.g., law and literature, literary theory), or other area of special interest. Up to 9 credit hours may be taken in courses from other departments relevant to the concentration. In consultation with a major adviser, each student selects specific courses, which are listed in a contract that is filed after the student has formally declared the major.
2. 6 credit hours in History (literature before 1800)
3. 6 credit hours in Diverse Perspectives (ethnic American or Anglophone literature)
4. 6 credit hours from any of the courses that count toward the English major.

A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the requirement in numbers 2, 3, and 4 above are described below under General Requirements and Advice for Majors and Minors in All Programs.

Minor in English: Literature

At least 18 credit hours of course work in English are required. These courses must include 3 credit hours from History (literature before 1800) and 3 credit hours of Diverse Perspectives (ethnic American or Anglophone literature). A course cannot be used to satisfy more than one requirement in the minor.

Minor in English: Creative Writing

At least 18 credit hours of course work in English are required. These courses must include three upper-level workshops (9 credit hours) in any genre (3210, 3220, 3230, 3240, 3250, or 3260).

General Requirements and Advice for Majors and Minors in All Programs

All courses numbered 2050 and above (except 4999) count toward the major. Additionally, students may elect to count one of the following 1000-level courses toward their major: 1111, 1210W, 1220W, 1230W, 1240, 1250W, 1260W, 1270W, 1280, 1290. English 3890, 3890W, 3892, 3892W, 3894, 3894W, and 3898 may be repeated for credit when the topics are different. The survey courses, 2310, 2311, 2316, 2316W, 2318, 2318W, 2319, and 2319W are recommended for sophomores to provide a background for advanced courses.

Note: A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the ***History requirement*** (literature before 1800) include 2310, 2318, 2318W, 3310, 3314, 3316, 3318, 3330, 3332, 3335, 3335W, 3336, 3337, 3340, 3340W, 3346, 3348, 3360, 3361, 3364, 3370.

Courses that fulfill the ***Diverse Perspectives requirement*** (ethnic American or Anglophone literature) include 3650, 3650W, 3654, 3654W, 3658, 3662, 3662W, 3664, 3670, 3670W, 3674, 3678, and appropriate courses from other departments as approved by the director of undergraduate studies.

Courses that fulfill the ***Program II creative writing workshop requirement*** include 3210, 3220, 3230, 3240, 3250, 3260.

In addition, suitable sections of 3890, 3890W, 3892, 3892W, 3894, 3894W, 3746, 3898, 3898W, 4998, 4999, (as appropriate) and other courses may fulfill the categories listed. Detailed course descriptions appear on the Department of English website for the upcoming semester and are available in the department. Majors are required to consult with their advisers during registration to identify what specific requirements the courses offered in that semester might fulfill.

One course from another department, appropriate to the student's course of study, may be counted toward the requirements of any program with permission of the director of undergraduate studies; for Program III, this course may be in addition to the 9 credit hours already allowed from other departments.

Honors Program

To graduate with honors in English, students must (a) complete all the requirements of the English major, with at least 6 credit hours in honors sections (an appropriate graduate seminar or seminar in a study abroad program may be substituted for one honors seminar); (b) 3 credit hours of 4998; (c) maintain at least a 3.4 grade point average overall and 3.6 in the major; (d) be admitted to the Honors Program in the spring of the junior year; (e) write a thesis (4999) and pass an oral examination about its subject in the spring of the senior year. For secondary education double-majors, EDUC 9700 can be substituted for 4999 with the consent of the director of undergraduate studies.

To comply with all requirements, every honors student will complete 33 credit hours. Exceptional achievement on the thesis will earn high honors. Majors who wish to apply to the Honors Program must be within 6 credit hours of completing all AXLE requirements, must have made reasonable progress toward the major, and must have at least a 3.4 grade point average overall and 3.6 in the major. Applications are accepted in April of the junior year. Additional information is available from the director of undergraduate studies. Students need not be enrolled in the Honors Program to take honors sections. Honors sections are seminars open to any student beyond the freshman year who has completed the sophomore writing requirement of AXLE and has earned at least a 3.4 grade point average. Students are encouraged to enroll in honors sections prior to applying to the program.

Licensure for Teaching

Candidates for teacher licensure in English at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

European Studies

Program of Concentration in European Studies

Honors Program

The Minor in European Studies

Joint Major Option

List of Approved Courses with European Content

DIRECTOR Christoph Zeller and Meike G. Werner

PROFESSORS Robert Barsky, Michael Bess, Emily Greble, Christoph Zeller

ASSOCIATE PROFESSORS Ari Joskowicz, Letizia Modena, Michelle Murray, Meike Werner

VISITING ASSOCIATE PROFESSOR Alexander Schmidt

COURSES OFFERED: EUS

Program of Concentration in European Studies

Designed for students who seek to broaden their understanding of European societies and to prepare for international careers or advanced study, the Program in European Studies (EUS) offers disciplinary breadth as well as expertise in a specialty of students' choosing. Most EUS majors also participate in an approved study abroad program in Europe.

In consultation with an adviser in European Studies, students choose a focus and specific courses that will fulfill the requirements for the major. This focus can consist of a thematic or comparative topic (such as Central European literature or Law and Economics in the European Union) or the culture and society of a particular nation (such as France, Germany, Italy, Poland, Spain). In addition to the core requirements, majors take relevant courses in history, social sciences, and the humanities, as well as a foreign language of the student's choice.

The Program in European Studies sponsors special activities including a visiting lecture series, international symposia, and informal faculty-student luncheon seminars.

Required Core Courses (12 credit hours)

- EUS 2201, European Society and Culture or EUS 2203, The Idea of Europe (3 credit hours)
- EUS 4960, Senior Tutorial (3 credit hours) to write a senior thesis
- 6 credit hours in European Studies courses or equivalent approved by major adviser

Foreign Language Requirement (6 credit hours)

The foreign language requirement is to be satisfied in one of the following ways:

- 6 credit hours of course work at the intermediate level in one European language;
- course work through the beginner level in two European languages;
- demonstration of proficiency equivalent to either of the preceding options; or
- participation in one of the Vanderbilt intensive-language programs in Europe (students participating in the Vanderbilt's predominantly English-language program in Europe must complete course work through the intermediate level in one European language, or demonstrate equivalent proficiency).

European languages recognized for the major include Albanian, Bulgarian, Czech, Croatian/Bosnian/Serbian, Danish,

Finnish, French, German, Greek, Hungarian, Ladino (Judeo-Spanish), Italian, Norwegian, Polish, Portuguese, Romani, Romanian, Russian, Slovak, Spanish, Swedish, Turkish, Ukranian and Yiddish. Other languages may be approved by the major adviser.

Electives (12–18 credit hours)

The remainder of the 30 credit hours required for the major may be selected from the list of courses below or from among approved courses taken abroad. Students majoring in EUS are advised to select courses from the social sciences and humanities that complement their areas of special interest and their thematic focus.

Other Issues Relating to the Major

Normally, no more than 6 credit hours of work in 1000-level courses may be counted toward the major. However, students who have fulfilled their language requirements by demonstrating equivalent proficiency or through participation in a Vanderbilt approved study program in Europe may count up to two 1000- and/or 2000-level language courses in a European language toward their major.

Students seeking a second major may count a maximum of 6 credit hours of course work to meet requirements in both majors.

Honors Program

The Program in European Studies offers qualified majors the option of completing a portion of their major requirements in an Honors Program. Students engage in interdisciplinary reading, consultations with faculty, and research on the overarching theme of their program of concentration. To be admitted to the program students must have attained a minimum cumulative grade point average of 3.300 and a minimum grade point average of 3.300 in all courses that count toward the EUS major; identify an adviser for the honors thesis; submit a detailed description of their proposed program of study for approval by the director of EUS; complete 3 credit hours of independent research (normally EUS 4998); complete 3 credit hours of credit in EUS 4960, Senior Tutorial, that involves researching and writing a senior honors thesis of approximately fifty pages; successfully defend the honors thesis before a committee normally consisting of the adviser, the director of EUS, and another faculty member. Information concerning the Honors Program is available from the director of EUS. College regulations governing honors programs may be found in this catalog under Honors Programs, Special Programs for Arts and Science.

The Minor in European Studies

The EUS minor is a good complement to a major in anthropology, history, economics, literary studies, philosophy, and political science. It involves 18 credit hours of course work with concentration and distribution requirements similar to those for the major, but on a reduced scale. A background in a modern foreign language is highly recommended.

Students choose a thematic focus and take approved European content courses distributed as follows:

- EUS 2201, European Society and Culture, or EUS 2203, The Idea of Europe
- 6 additional credit hours selected from EUS-labeled courses (or approved substitute)
- 9 hours of topical courses on Europe, approved by the major adviser

The minimum number of credit hours required for the minor is 18.

Joint Major Option

The Program in European Studies collaborates with several departments to create joint majors in French and European Studies, German and European Studies, Italian and European Studies, Russian, East European and European Studies, and Spanish, and European Studies. These options are offered as collaborations between the

Program in European Studies and the Departments of French and Italian, German, Russian, and East European Studies, and Spanish and Portuguese, and consist of 30 credit hours of course work each. Please see the detailed information on the joint major options under the departmental headings in this catalog. Students selecting one of these options will be advised by their major adviser in the language-and-culture department as well as their adviser in the Program in European Studies.

List of Approved Courses with European Content

Because the curricular offerings are constantly changing, prospective majors and minors should consult with the director about appropriate substitutes for courses listed below.

ANTHROPOLOGY: 3371, Social and Health Consequences of Pandemics.

CLASSICS: 3120, Humor, Ancient to Modern.

COMMUNICATION STUDIES: 3600, The Rhetorical Tradition.

ECONOMICS: 3160, Economic History of Europe; 3600, International Trade; 3610, International Finance.

ENGLISH: 1111, First-Year Writing Seminar (with appropriate topic); 2310, British Writers to 1660; 2311, British Writers 1660–Present; 3310, Anglo-Saxon Language and Literature; 3314, Chaucer; 3316, Medieval Literature; 3330, Sixteenth Century; 3332, English Renaissance: The Drama; 3335W, English Renaissance Poetry; 3336, Shakespeare: Comedy and Histories; 3337, Shakespeare: Tragedy and Romance; 3340, Shakespeare: Representative Selections; 3340W, Shakespeare: Representative Selections; 3346, Seventeenth-Century Literature; 3348, Milton; 3360, Restoration and the Eighteenth Century Early; 3361, Restoration and Eighteenth Century Late; 3364, The Eighteenth-Century English Novel; 3370, The Bible in Literature; 3610, The Romantic Period; 3611, The Romantic Period; 3614, The Victorian Period; 3618, The Nineteenth-Century English Novel; 3630, The Modern British Novel; 3634, Modern Irish Literature; 3640, Modern British and American Poetry: Yeats to Auden; 3681, Twentieth-Century British and World Drama; 3683, Contemporary British Literature; 3740, Critical Theory; 3890, Movements in Literature (with appropriate topic); 3890W, Movements in Literature (with appropriate topic); 3892, Problems in Literature (with appropriate topic); 3892W, Problems in Literature (with appropriate topic); 3894, Major Figures in Literature (with appropriate topic); 3894W, Major Figures In Literature (with appropriate topic); 3898, Special Topics in English and American Literature (with appropriate topic); 3898W, Special Topics In English and American Literature (with appropriate topic).

EUROPEAN STUDIES: 2201, European Society and Culture; 2203, The Idea of Europe; 2208, Conspiracy Theories and Rumors in European and

U.S. History; 2212, Revolutions and Post-Communisms in Eastern Europe and Eurasia, 1981-2010; 2213, Introduction to European Intellectual Traditions: Ancient and Medieval; 2214, Introduction to European Intellectual Traditions: Modern; 2220, Religion and Politics in Modern Europe, 1648–Present; 2222, Right-wing Populist Parties: Populism in Europe and Beyond; 2228. The Flight of Vulnerable Migrants to Europe; 2240, Topics in European Studies; 2260, European Cities; 2800, Pursuing Utopia: Social Justice and Romanticism in the Alps.

FRENCH: 2501W, French Composition and Grammar; 2614, Advanced Conversational French; 2891, Cross Cultural Communication; 3101, Texts and Contexts: Middle Ages to the Enlightenment; 3102, Texts and Contexts: Revolution to the Present; 3111, French for Business; 3112, Medical French in Intercultural Contexts; 3113, Advanced French Grammar; 3180, La Provence; 3181, Contemporary France; 3188, The Contemporary Press and Media; 3222, The Early Modern Novel; 3223, The *Querelles des femmes;* 3224, Medieval French Literature; 3230, French and Francophone Cinema; 3281, Provence and the French Novel; 3286, Cultural Study Tour; 3620, Age of Louis XIV; 3621, Enlightenment and Revolution; 3622, From Romanticism to Symbolism; 3623, The Twentieth-Century Novel;

4025, From Carnival to the “Carnivalesque”; 4027, Emile Zola: From Naturalist Novels to Social Activism; 4029, Twentieth-Century French Literature; 4030, French and Italian Avant-garde; 4221, Literature of the Fantastic; 4232, Literature and Law; 4284, Art and Literature of the Nineteenth Century; 4285, Art and Literature of the Twentieth Century; 4320, French Feminist Thought: Literary and Critical; 4322, Adultery and Transgressions in Literature; 4430, Jews and Arab-Muslims in France; 4432, French Intellectual History.

GENDER AND SEXUALITY STUDIES: 1272, Feminism and Film.

GERMAN: 1111, First-Year Writing Seminar; 1482, Borders and Crossings: German Literature and Culture from Romanticism to the Present; 2310W, Introduction to German Studies; 2320, Conversation and Composition: Current Events; 2321, Conversation and Composition: Contemporary Culture; 2341, German Culture and Literature; 2342, German Culture and Literature; 2441, Great German Works in English; 2442, War on Screen; 2443, German Cinema: Vampires, Victims, and Vamps; 2444, German Fairy Tales from Brothers Grimm to Walt Disney; 2445, Nazi Cinema: The Manipulation of Mass Culture; 2552, Topics: 18th and 19th Century Culture and Literature; 2553, Topics: 20th and 21st Century Culture and Literature; 2554, Topics in Visual Culture and Media; 2570, The Holocaust; 3323, From Language to Literature; 3343, The Aesthetics of Violence: Terror, Crime, and Dread in German Literature; 3344, Women at the Margins: German-Jewish Women Writers; 3345, Love and Friendship; 3375, Art and Rebellion: Literary Experiment in the 1960s and 1970s; 3378, Dreams in Literature; 4458, Business German; 4535, German Romanticism; 4537, Women and Modernity; 4548, German Lyric Poetry—Form and Function; 4563, The Age of Goethe-Weimar 1775 to 1805; 4564, Pleasures and Perils in Nineteenth-Century Theatre; 4565, Revolutionizing Twentieth-Century Theatre; 4566, Nineteenth-Century Prose; 4567, The German Novel from Kafka to Grass; 4569, Writing under Censorship; 4574, Who Am I? German Autobiographies; 4576, Tales of Travel in Modern German Culture.

HISTORY OF ART AND ARCHITECTURE: 1100, History of Western Art I; 1110, History of Western Art II; 1111, First-Year Writing Seminar (with appropriate topic); 1500W, Impressionism; 2220, Greek Art and Architecture; 2270, Early Christian and Byzantine Art; 2285, Medieval Art; 2310, Italian Art to 1500; 2320W, The Italian Renaissance Workshop; 2325, Great Masters of the Italian Renaissance; 2330, Italian Renaissance Art after 1500; 2360, Northern Renaissance Art; 2362, Fifteenth-Century Northern European Art; 2390, Seventeenth-Century Art; 2600, Eighteenth-Century Art; 2620, Nineteenth-Century European Art; 2622, Neoclassicism and Romanticism; 2650, Nineteenth-Century Architecture: Theory and Practice; 2652, French Art in the Age of Impressionism; 2680, British Art: Tudor to Victorian; 2708, Twentieth-Century British Art; 2710, Twentieth- Century European Art; 2720, Modern Architecture; 2722, Modern Art and Architecture in Paris; 3224, Greek Sculpture; 3226, Greek Vases and Society; 3228W, Gender and Sexuality in Greek Art; 3274, Art and Empire from Constantine to Justinian; 3320, Early Renaissance Florence; 3320W, Early Renaissance Florence; 3332, Raphael and the Renaissance; 3334, Michelangelo’s Life and Works; 3334W, Michelangelo’s Life and Works; 3364W, The Court of Burgundy; 3366, 16th-Century Northern European Art; 3605W, French Art in the Age of Louis XV: From Rococo to Neoclassicism; 3790, Monumental Landscapes of Provence.

HISTORY: 1111-08, European Imperialism: Colonizer and Colonized in the Modern World; 1350, Western Civilization to 1700; 1360, Western Civilization since 1700; 1390, America to 1776: Discovery to Revolution; 1480, The Darwinian Revolution; 1500, History of Modern Sciences and Society; 1510, The Scientific Revolution; 1580, Crime and Punishment in Early Modern Europe 1400–1800 CE; 1584W, Foreigners and Citizens: Law and Rights in Modern Europe; 1600, European Economic History, 1000– 1700; 1700, Western Military History to 1815; 1730, The U.S. and the

Cold War; 1760, History of Christian Traditions; 2130, Russia: Old Regime to Revolution; 2135, Russia: The USSR and Afterward; 2220, Medieval and Renaissance Italy, 1000–1700; 2230, Medieval Europe, 1000–1350; 2250, Reformation Europe; 2260, Revolutionary Europe, 1789–1815; 2270, Nineteenth-Century Europe; 2280, Europe, 1900–1945; 2290, Europe since 1945; 2293, Muslims in Modern Europe; 2295, The Migrant Crisis in the Netherlands; 2300, Twentieth-Century Germany; 2310, France: Renaissance to Revolution; 2340, Modern France; 2380, Shakespeare’s Histories and History; 2382, The Rise of the Tudors; 2383, A Monarchy Dissolved? From Good Queen Bess to the English Civil War; 2385, The Real Tudors; 2410, Victorian England; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2595W, The English Atlantic World, 1500–1688; 2720, World War II; 2800, Modern Medicine; 2835, Sexuality and Gender in the Western Tradition to 1700; 2840, Sexuality and Gender in the Western Tradition since 1700; 3010, Pornography and Prostitution in History; 3120, Weimar Germany: Modernism and Modernity, 1918–1933; 3150, Cities of Europe and the Middle East; 3180, Making of Modern Paris;

3230, The Art of Empire; 3260, Revolutionary England, 1603–1710; 3270, Religion and the Occult in Early Modern Europe; 3275, Religion and Popular Culture in Nineteenth-Century Europe.

ITALIAN: 1111-01, First-Year Writing Seminar: Italian History and Culture Through Cinema; 2203, Italian Journeys; 2501W, Grammar and Composition; 2614, Conversation; 3000, Introduction to Italian Literature; 3041, Italian Civilization; 3100, Literature from the Middle Ages to the Renaissance; 3240, Dante's *Divine Comedy;* 3242, Dante in Historical Context; 3340, *Famous Women* by Boccaccio; 3500, Baroque, Illuminismo, and Romanticism in Italy; 3600, Twentieth-Century Literature: Beauty and Chaos; 3640, Classic Italian Cinema; 3641, Contemporary Italian Cinema; 3642, Italian Visual Culture; 3701, City Fictions; 3702, Topics in Contemporary Italian Civilization; 3802, Contemporary Italian Society and Culture.

JEWISH STUDIES: 1002, Introduction to Jewish Studies; 1002W, Introduction to Jewish Studies; 1200, Classical Judaism: Jews in Antiquity; 1220, Jews in the Medieval World; 1240, Perspectives in Modern Jewish History; 2210W, Hebrew Literature in Translation; 2250W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors; 2250W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors; 2270, Jewish Storytelling; 2270W, Jewish Storytelling; 2320, Freud and Jewish Identity; 2340, Jewish Philosophy after Auschwitz; 2450, The Jewish Diaspora; 2640, Jews and Greeks; 3100, The Holocaust.

MUSIC LITERATURE AND HISTORY: 1220, The Symphony; 1230, Survey of Choral Music; 2200W, Music in Western Culture; 3220, Opera in the 17th and 18th Centuries; 3221, Opera in the 19th Century; 3222, Mahler Symphonies: Songs of Irony; 3223, Music in the Age of Beethoven and Schubert; 3224, Haydn and Mozart; 3225, Brahms and the Anxiety of Influence; 3227, Music in the Age of Revolution, 1789–1848; 3228, J.S. Bach: Learned Musician and Virtual Traveler; 3229, Robert Schumann and the Romantic Sensibility; 3230, Music and the Construction of National Identity; 3890, Selected Topics in Music History (with appropriate topic).

PHILOSOPHY: 1111, First-Year Writing Seminar (with appropriate topic); 1200, The Meaning of Life; 1200W, The Meaning of Life; 2102, Medieval Philosophy; 2103, Modern Philosophy; 2104 Nineteenth-Century Philosophy; 2109, Twentieth-Century Continental Philosophy; 2110,

Contemporary Philosophy; 2660, Philosophy of Music; 3005, Jewish Philosophy; 3007, French Feminism; 3009, Existential Philosophy; 3010, Phenomenology; 3011, Critical Theory; 3013, History of Aesthetics; 3014, Modernistic Aesthetics; 3103, Immanuel Kant; 3104, Kierkegaard and Nietzsche; 3105, Hegel; 3602, Philosophy of History; 3620, Political and Social Philosophy; 3621, Early Modern Political Philosophy; 3622, Contemporary Political Philosophy; 3623, Modern Philosophies of Law.

POLITICAL SCIENCE: 1101, Introduction to Comparative Politics; 1102, Introduction to International Politics; 1103, Justice; 2202, Ancient Political Thought; 2203, History of Modern Political Philosophy; 2210, West European Politics; 2220, Crisis Diplomacy; 2221, Causes of War; 2223, European Political Economy and Economic Institutions; 2225, International Political Economy; 2226, International Law and Organization; 2274, Nature of War; 3211, The European Union; 4238, Comparative Political Parties.

PORTUGUESE: 2203, Intermediate Portuguese; 3301, Portuguese Composition and Conversation; 3892, Special Topics in Portuguese Language, Literature, or Civilization (with appropriate topic).

RELIGIOUS STUDIES: 1111, First-Year Writing Seminar (with appropriate topic); 1820, Religion, Sexuality, Power; 2210W, Constructions of Jewish Identity in the Modern World; 2940, Great Books of Literature and Religion; 3229, The Holocaust: Its Meanings and Implications; 3316, Christianity in the Reformation Era; 3940, The Nature of Evil; 3941, Religion, Science, and Evolution; 4834, Post-Freudian Theories and Religion; 4835, Freudian Theories and Religion; 4836, The Religious Self according to Jung.

RUSSIAN: 1111, First-Year Writing Seminar; 1500, Introduction to Russian and East European Studies; 1874, Russian

Fairy Tales; 1910W, 19th Century Russian Literature; 1911W, 20th Century Russian Literature; 2210, Russia Today: Politics, Economics, and Culture; 2230, Russia at War; 2273, Russian Science Fiction; 2310, Survey of Russian Literature in English Translation; 2311, Survey of Russian Literature in English Translation; 2434, The Russian Cinema; 2435, Leo Tolstoy: *Anna Karenina* and Other Masterpieces; 2436, Tolstoy's *War and Peace*; 2438, Dostoevsky's Major Novels: Philosophy and Aesthetics; 2537, Vladimir Nabokov; 2639, The Story of Siberia; 2745, Art After Zero: The Russian Avant-Garde; 2800, Viewing Communism in Eastern Europe.

SOCIOLOGY: 3851, Independent Research and Writing (with appropriate topic); 4961, Seminars in Selected Topics (with appropriate topic).

SPANISH: 1111-03, First-Year Writing Seminar: Travel Matters; 2990, Images of the Feminine in Spanish Cinema; 3301W, Intermediate Spanish Writing; 3302, Spanish for Oral Communication through Cultural Topics; 3325, The Way of Saint James; 3340, Advanced Conversation; 3345, Spanish for Business and Economics; 3355, Advanced Conversation through Cultural Issues in Film; 3360, Spanish Civilization; 3365, Film and Recent Cultural Trends in Spain; 4340, History of the Spanish Language; 4345, The Languages of Spain; 4400, The Origins of Spanish Literature; 4405, Literature of the Spanish Golden Age; 4410, Spanish Literature from the Enlightenment to 1900; 4415, Spanish Literature from 1900 to the Present; 4440, Development of the Short Story; 4445, Development of the Novel; 4450, The Contemporary Novel; 4455, Development of Drama; 4465, Theory and Practice of Drama; 4470, Development of Lyric Poetry; 4475, Contemporary Lyric Poetry; 4620, Love and Honor in Medieval and Golden Age Literature; 4640, *Don Quixote;* 4670, Spanish Realism; 4690, Alterity and Migration in Spain.

French and Italian

Program of Concentration in French

Honors Program in French

Program of Concentration in French and European Studies

Minor in French

Minor in Italian Studies

Program of Concentration in Italian and European Studies

Licensure for Teaching

CHAIR Lyn Ramey

DIRECTOR OF UNDERGRADUATE STUDIES IN FRENCH Raisa Rexer

DIRECTOR OF UNDERGRADUATE STUDIES IN ITALIAN Elsa Filosa

DIRECTOR OF GRADUATE STUDIES Bob Barsky

PROFESSORS EMERITI Dan Church, Virginia M. Scott, Patricia A. Ward

PROFESSORS Robert Barsky, William Franke, Lynn Ramey, Tracy Sharpley-Whiting, Holly A. Tucker

ASSOCIATE PROFESSORS Nathalie Debrauwere-Miller, Paul B. Miller, Andrea Mirabile, Letizia Modena, Anthère Nzabatsinda

ASSISTANT PROFESSOR Raisa Rexer

ASSISTANT PROFESSOR OF THE PRACTICE: Elsa Filosa, Alexis Finet

PRINCIPAL SENIOR LECTURERS Nathalie Dieu-Porter, Susan Kevra

SENIOR LECTURER EMERITUS Tracy Barrett

SENIOR LECTURER Lisa Blomquist, Anna Marra, Honorine Rouiller

LECTURER Rebecca Peterson, Elena Sergio

COURSES OFFERED: CREO, FREN, ITAL

The Department of French and Italian offers a wide range of courses in the language, culture, and literatures of Italy, France, and other Francophone communities. Most language, literature, and culture courses are taught in French or Italian. Students may use courses in both French and Italian to satisfy some requirements of AXLE.

The department offers a program of concentration in French as well as two interdisciplinary programs: a concentration in French and European studies and a concentration in Italian and European studies. Qualified French majors may also participate in the Honors Program in French. Minors in French and Italian are offered. On the graduate level, the department offers a doctoral program in French.

Many students participate in French or Italian study abroad programs. The department offers Maymester programs in France and Italy. On-campus activities include films, symposia, concerts, and lectures by visiting professors. The department has chapters of national honor societies for both French and Italian students.

Program of Concentration in French

Students who choose to major in French are expected to achieve advanced proficiency in oral and written French and to demonstrate a general understanding of the history of French and Francophone literatures and cultures. No more than 6 credit hours of AP or IB credit may count toward the 30 credit hours required for the major (3 credit hours for 2501W and 3 credit hours of “no equivalent” credit). All majors are strongly urged to spend a semester or a year studying abroad. Majors should consult their advisers about their choice of major courses each semester.

Course work for the major is distributed as follows:

Required courses (9 credit hours): 2501W, 3101, 3102

Two courses from Communications (6 credit hours): 2611, 2614, 2891, 3111, 3112, 3113, 3892

Five courses from Literatures and Cultures (15 credit hours): 3185W, 3222, 3224, 3230, 3232, 3233, 3234, 3332, 3620, 3621, 3622, 3634, 3730, 3881, 3891, 4023, 4025, 4027, 4029, 4222, 4232, 4234, 4320, 4430, 4432.

Honors Program in French

In addition to requirements set by the College of Arts and Science, the following requirements must be met:

1. All the requirements for the 30-credit-hour major in French.
2. One graduate-level French course during the senior year for at least 3 credit hours; this course may substitute for one 3000- or 4000-level course required for the major.
3. Earn a 3.5 grade point average in courses that count toward the French major.
4. Six credit hours of thesis credit under French 4998 and 4999 (Senior Honors Thesis), culminating in a written thesis.
5. An oral examination on the thesis and its area in the last semester of the senior year.

A three-member Honors Committee will administer the program. Students must submit the name of the faculty adviser and the proposed thesis topic to this committee for approval during the second semester of the junior year. The committee will set guidelines for the thesis topic proposal, publish deadlines each year, and administer the oral examination.

Program of Concentration in French and European Studies

Students may elect this interdisciplinary major, which requires a minimum of 30 credit hours of course work. A semester of study at a French study abroad program is strongly encouraged. Course work for the joint major is distributed as follows:

French (24 credit hours)

French Language, Literature, and Culture (9 credit hours): 2501W, 3101, 3102 Communications (3 credit hours): 2611, 2614, 2891, 3111, 3112, 3113, or 3892

Literatures and Cultures (6 credit hours): 3185W, 3224, 3230, 3232, 3234, 3620, 3621, 3622, 3634, 3730, 3881, 3891, 4023, 4027, 4029, 4222, 4232, 4234, 4320, 4430, 4432.

European Studies (12 credit hours)

European Studies core courses (3 credit hours): EUS 2201, 2203

Courses in EUS or alternative topical courses as approved by major adviser (*6 credit hours*)

Minor in French

The minor in French requires 18 credit hours of 2000- or higher-level course work, including 2501W, 3101, and 3102. All minors are expected to consult their advisers about their choice of courses. No course taught in English may count toward the minor. Students are encouraged to participate in a French study abroad program.

Minor in Italian Studies

Students who minor in Italian studies are expected to achieve intermediate proficiency in oral and written Italian, to demonstrate a general understanding of the history of Italian literatures and cultures, and to develop an awareness of the ways Italian studies intersects with other disciplines. The minor in Italian studies requires 15 credit hours of course work, including:

Required courses (6 credit hours):

ITALIAN: 2203, Intermediate Italian (prerequisite ITA 1102; ITA 1103, or equivalent); either 2501W, Grammar and Composition (prerequisite ITA 2203 or equivalent), or 2614, Conversation (prerequisite ITA 2203 or equivalent). ITA 1101, 1102, 1103 do not count toward the minor.

Elective courses (9 credit hours). Only 3 of these elective credit hours may be selected from courses in subject areas other than Italian, such as Classical Studies, History, History of Art and Architecture, Music Literature, and History:

ITALIAN: 2501W, Grammar and Composition (if not used as a required course); 2614, Conversation (if not used as a required course); 3000, Introduction to Italian Literature; 3041, Italian Civilization; 3100, Literature from the Middle Ages to the Renaissance; 3240, Dante's *Divine Comedy;* 3340, *Famous Women* by Boccaccio; 3500, Baroque, Illuminismo, and Romanticism in Italy; 3600, Twentieth-Century Literature: Beauty and Chaos; 3640, Classic Italian Cinema; 3641, Contemporary Italian Cinema; 3701, City Fictions; 3702, Topics in Contemporary Italian Civilization; 3703, The Cultural and Linguistic Worlds of Italy; 3740, Gangsters, Lovers, Madonnas, and Mistresses; 3802, Contemporary Italian Society and Culture; 3890, Special Topics in Italian Literature.

CLASSICAL STUDIES: LAT 3100, Roman Comedy; LAT 3110, Catullus; LAT 3120, Lucretius: *De Rerum Natura*; LAT 3130, Vergil: *The Aeneid;*

LAT 3160, Ovid.

HISTORY: 2220, Medieval and Renaissance Italy, 1000–1700.

HISTORY OF ART AND ARCHITECTURE: 2310, Italian Art to 1500; 2330, Italian Renaissance Art after 1500; 3320, 3320W, Early Renaissance Florence; 3332, Raphael and the Renaissance; 3334, 3334W, Michelangelo's Life and Works.

MUSIC LITERATURE: 3220, Opera in the 17th and 18th Centuries; 3221, Opera in the 19th Century.

Other Italy-related courses not listed here—such as those in study abroad programs—may be approved towards the minor upon approval by the director of undergraduate studies in Italian. Students are encouraged to participate in study abroad programs in Italy.

Program of Concentration in Italian and European Studies

The joint major in Italian and European Studies acknowledges the cultural, political, and strategic importance of Italy within the community of European nations. It requires 30 credit hours of course work; a semester of study in Italy is recommended. Prospective majors should consult with the director of undergraduate studies in Italian and with the director of the European Studies program. Course work for the joint major is distributed as follows:

Italian (18 credit hours)

Italian language and literature — 12 credit hours from the following courses: ITA 2501W, 3000, 3041, 3240, or appropriate substitute in consultation with the adviser in Italian

Electives in Italian Studies (6 credit hours): ITA 2614, 3100, 3600, 3702, or 3640 or any other course approved by the major adviser in Italian

European Studies (12 credit hours)

European Studies core courses (3 credit hours): EUS 2201, 2203, and 4960

EUS thesis seminar (EUS 4960 Senior Tutorial) or equivalent course in Italian *(3 credit hours)*

Courses in EUS or alternative topical courses as approved by major adviser (*6 credit hours*)

Licensure for Teaching

Candidates for teacher licensure in French at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

French

Students who have not studied French in high school should begin their studies at Vanderbilt in French 1101. Students with high school French on their records must present a College Board achievement test score in French to be placed correctly. Students should consult their advisers or the Department of French and Italian for advice on placement.

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Italian

Students with high school Italian on their records should consult the director of undergraduate studies in Italian for advice on placement. Students who have not studied Italian in high school should begin their studies at Vanderbilt in Italian 1101.

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Gender and Sexuality Studies

Program of Concentration in Gender and Sexuality Studies

Honors Program

Minor in Gender and Sexuality Studies

CHAIR Katherine Crawford

DIRECTOR OF UNDERGRADUATE STUDIES Elizabeth R. Covington

PROFESSOR EMERITA Charlotte Pierce-Baker

PROFESSORS Dana Nelson, Kelly Oliver

PRINCIPAL SENIOR LECTURER Julie Fesmire

SENIOR LECTURERS Elizabeth R. Covington, Rory Dicker (Women’s Center), K. Allison Hammer, Kristen Navarro, Stacy C. Simplican, Danyelle Valentine

Affiliated Faculty

PROFESSORS Brooke A. Ackerly (Political Science), Ellen T. Armour (Divinity School), Houston A. Baker (English), Robert F. Campany (Asian Studies), Ellen W. Clayton (Pediatrics, Law), Katherine B. Crawford (History), Cynthia J. Cyrus (Blair), Kate Daniels (English), Colin Dayan (English), Bonnie J. Dow (Communication Studies), Lynn E. Enterline (English), Jennifer Fay (Cinema and Media Arts), Gerald Figal (History and Asian Studies), Earl E. Fitz (Portuguese), Vivien G. Fryd (History of Art and Architecture), Tracey E. George (Law), Derek M. Griffith (Medicine, Health, and Society), Joni L. Hersch (Law), Sarah Igo (History), Vera M. Kutzinski (English), Amy-Jill Levine (New Testament Studies), Jonathan M. Metzl (Medicine, Health, and Society), Holly J. McCammon (Sociology), Thomas A. McGinn (History), Bonnie J. Miller- McLemore (Religion, Psychology, and Culture), Lynn T. Ramey (French), Laurel C. Schneider (Religious Studies), Kathryn L. Schwarz (English), Mark L. Schoenfield (English), Tracy D. Sharpley-Whiting (African American and Diaspora Studies, French), John M. Sloop (Communication Studies), Hortense J. Spillers (English), Cecelia Tichi (English), Benigno L. Trigo (Spanish and Portuguese), Emilie Townes (Divinity), Arleen M. Tuchman (History), Holly A. Tucker (French and Italian), Edward N. Wright-Rios (History)

ASSOCIATE PROFESSORS Vanessa B. Beasley (Communication Studies), Laura M. Carpenter (Sociology), Beth A. Conklin (Anthropology), Nathalie A. Debrauwere-Miller (French), Idit Dobbs-Weinstein (Philosophy), Christin Essin (Theatre), Kathy L. Gaca (Classical and Mediterranean Studies), Teresa A. Goddu (English), Rolanda L. Johnson (Nursing), Scott Juengel (English), Christina Karageorgou-Bastea (Spanish and Portuguese), Shaul J. Kelner (Sociology, Jewish Studies), Claire S. King (Communication Studies), Melanie D. Lowe (Blair), Richard J. McGregor (Religious Studies), Adam S. Meyer (Jewish Studies), Tracy Miller (History of Art and Architecture and Asian Studies), Catherine A. Molineux (History), Ifeoma C. Nwankwo (English), Emanuelle Oliveira-Monte (Spanish and Portuguese), Bridget E. Orr (English), Richard N. Pitt (Sociology), Nancy B. Reisman (English), Ruth Rogaski (History), Allison H.

Schachter (Jewish Studies), C. Melissa Snarr (Ethics and Society), Meike G. Werner (German, Russian and East European Studies)

ASSISTANT PROFESSORS Candice Amich (English), Gilbert Gonzales (Medicine, Health, and Society), Aimi Hamraie (Medicine, Health, and Society), Jessie Hock (English), Mireille M. Lee (History of Art and Architecture), Luis Leyva (Teaching and Learning), Linda G. Manning (Human and Organizational Development), N. Michelle Murray (Spanish and Portuguese), Monica Park (Classical and Mediterranean Studies), Kimberly Welch (History), Alexis Wells-Oghoghomeh (Religious Studies)

ASSISTANT PROFESSOR OF THE PRACTICE Sophie Bjork-James (Anthropology),

SENIOR LECTURERS Alexandra Sargent Capps (Theatre), Amy Cooter (Sociology), Yollette T. Jones (History), Elizabeth S. Meadows (English), Courtney Sanders Peterson (Medicine, Health, and Society), JuLeigh Petty (Medicine, Health, and Society)

LECTURERS Melinda Brown (Librarian), Alexsey Dubilet (English), Cara Tuttle Bell (Project Safe)

WRITER IN RESIDENCE Alice Randall (African American and Diaspora Studies)

COURSES OFFERED: GSS

The Department of Gender and Sexuality Studies offers an interdisciplinary curriculum that examines the formation of gender and its intersections with other relations of power, such as sexuality, race, ability, class, nationality, religion, locality and age. The department encourages students to develop new theoretical approaches and to transform the analytical tools of many fields of study. Our courses and instructors pay particular attention to how lives are impacted by systemic inequalities. The goal of our scholarship, teaching, and activism is to make gender and sexuality central rather than peripheral terms of analysis. Our curriculum compels us to recognize the problems and possibilities of our current world and also empowers us to affect change. The Department of Gender and Sexuality Studies offers a major and a minor, and a graduate certificate, which provide a foundation for students who plan to enter professional schools in law, medicine, business, the humanities, and the social sciences.

NOTE: During the 2020/2021 academic year, the Department of Gender and Sexuality Studies will be converting its courses to new subject code, GSS.

Program of Concentration in Gender and Sexuality Studies

The interdisciplinary major in gender and sexuality studies consists of 30–36 credit hours of course work, distributed at the Introductory, Intermediate, and *Advanced* levels, as follows:

Introductory-Level Courses (3 credit hours)

Students must take either GSS (formerly WGS) 1150/1150W (Sex and Gender in Everyday Life) for 3 credit hours or GSS (formerly WGS) 1160/1160W (Sex and Society), also for 3 credit hours.

Intermediate-Level Courses (24 credit hours)

With the exception of GSS (formerly WGS) 4960, GSS (formerly WGS) 1272 and above are intermediate-level courses. GSS (formerly WGS) 1111 (First-Year Writing Seminar) also counts as an intermediate-level course. Of the required 24 intermediate-level credit hours, students must earn credit for at least one course in each of the following areas: international/global feminism; history/social movements; and sex/sexuality and society. Courses that meet these requirements are listed below. Students may earn up to 6 credit hours for internship training, independent research, and readings: GSS (formerly WGS) 3881, GSS (formerly WGS) 3882, or GSS (formerly WGS) 3883.

Advanced-Level Course (3 credit hours)

Students must earn credit for GSS (formerly WGS) 4960 (Senior Seminar), generally taken in the second semester of the student's final year.

Honors Program

The Honors Program in Gender and Sexuality Studies requires 36 credit hours of course work and is designed to afford exceptional students the opportunity to undertake independent research on a topic in feminist and/or gender scholarship in consultation with faculty members. The program is open to all gender and sexuality studies majors with junior standing who have completed at least 24 credit hours of the major and who have earned a 3.3 cumulative grade point average and a 3.3 grade point average in courses counting toward the gender and sexuality studies major. Students must be approved for acceptance into the Honors Program by the department chair. To graduate with honors in gender and sexuality studies, students must:

- Complete 36 credit hours of course work;
- Complete the required courses for the major (described above);
- Submit for approval a short description of the Honors project/thesis to the Chair of Gender and Sexuality Studies no later than second semester of the junior year;
- Complete 6 credit hours of independent research, 4998 and 4999 (Honors Research and Project), typically during the senior year under supervision of the project adviser. These 6 credit hours count as electives in the 36 credit hours of course work for Honors majors;
- Complete an honors project by the second semester of the senior year; and
- Pass an oral examination on the topic of the Honors project/thesis.

Information concerning the Honors Program is available from the Chair of the Gender and Sexuality Studies program. College regulations governing honors may be found in this catalog under Honors Programs.

Minor in Gender and Sexuality Studies

The minor in gender and sexuality studies consists of 18 credit hours of course work, distributed as follows:

Introductory-Level Courses (3 credit hours)

Students must take either 1150/1150W (Sex and Gender in Everyday Life) for 3 credit hours or 1160/1160W (Sex and Society), also 3 credit hours.

Intermediate-Level Courses (12 credit hours)

Of the required 12 intermediate-level credit hours, students must earn credit for at least one course in each of the following areas: international/global feminism; history/social movements; and sex/sexuality and society. Courses that meet these requirements are listed below.

Advanced-Level Course (3 credit hours)

Students must earn credit for GSS (formerly WGS) 4960 (Senior Seminar), generally taken in the second semester of the student's final year.

Courses approved to fulfill the international/global feminism(s) requirement:

ASIA 2609W (Writing and Gender in Traditional China)

ENGL 3658 (Latino-American Literature)

ENGL 3670W (Colonial and Postcolonial Literature)

ENGL 3742 (Feminist Theory)

FREN 3223 (The *Querelles des femmes*) [in French]

FREN 4320 (French Feminist Thought) [in French]

GSS (formerly WGS) 3201 (Women and Gender in Transnational Context)

GSS (formerly WGS) 3281 (Globalization and Policy Making)

GSS (formerly WGS) 3610 (Womanism in Global Context)

ITA 3340 (*Famous Women* by Boccaccio)

PHIL 3007 (French Feminism)

PSCI 3264W (Global Feminisms)

SOC 3711 (Women, Gender, and Globalization)

SPAN 2990 (Images of the Feminine in Spanish Cinema)

Courses approved to fulfill the history/social movements requirement:

AADS 2214 (History and Myth: Black Women in the U.S.)

CMST 3110 (Women, Rhetoric, and Social Change)

ENGL 3622 (Nineteenth-Century Women Writers)

GSS (formerly WGS) 3246/W (Women's Rights, Women's Wrongs)

GSS (formerly WGS) 3250/W (Contemporary Women's Movements)

HIST 2835 (Sexuality and Gender to 1700)

HIST 2840 (Sexuality and Gender since 1700)

HIST 2855 (Women and Gender in the U.S. to 1865)

HIST 2860 (Women and Gender in the U.S. since 1865)

ITA 3740 (Gangsters, Lovers, Madonnas, and Mistresses)

RLST 3930 (Women and Religion)

RLST 3926 (Ancient Goddesses)

SOC 3722 (Gender and Society)

Courses approved to fulfill the sex, sexuality, and society requirement:

AADS 2104 (Popular Culture and Black Sexual Politics)

ANTH 3145 (Sexuality, Gender, and Culture)

CLAS 3100 (Women, Sexuality, and the Family in Ancient Greece and Rome)

CMST 3720 (Communicating Gender)

FREN 4322 (Adultery and Transgressions in Literature) [in French]

GSS (formerly WGS) 2252 (Sex and Scandals in Literature)

GSS (formerly WGS) 2256 (Literary Lesbians)

GSS (formerly WGS) 2612 (LGBT Studies)

GSS (formerly WGS) 2613 (Compulsory Couplehood)

GSS (formerly WGS) 2614 (Cowboys, Gangsters, and Drag Kings: Introduction to Critical Masculinity)

GSS (formerly WGS) 2615 (Transgender Lives in Literature and Film)

HART 3228W (Gender and Sexuality in Greek Art)

HIST 2240 (Sex Law)

HIST 2810 (Women, Health, and Sexuality)

LAS 4550 (Gender, Sexuality and Family in Latin America)

PHIL 3604 (Gender and Sexuality)

RLST 1820 (Religion, Sexuality, Power)

RLST 3225 (Sexuality in the Hebrew Bible and Ancient Near East)

SOC 3723 (Gender, Sexuality, and the Body)

Additional courses approved for intermediate-level GSS credit from other departments:

AADS 1111*, AADS 1204, AADS 2214, AADS 4262, CLAS 1111*, CMST 1111*, CMST 2950, CMST 3100, CMST 3890, ENGL 1111*, ENGL 1111.19, ENGL 1230W*, ENGL1260W*, ENGL 3670/W*, ENGL 3674, ENGL 3890/W*, ENGL 3890.01, ENGL 3894/W*, ENGL 3898/W*, FREN 3230, GER 2444, GER 3344, GER 4535, GER 4537, HIST 1111*, HIST 3010, HIST 4960*, HART 2765, HART 3840*, HART 4960*, JS 1111*, MHS 1111*, MHS 3890*, PSCI 2209, PSCI 2236, PSCI 3271, PSCI 3893*, PSY 3705, RLST 1111*, RLST 2220, RLST 4554, RLST 4834, RLST 4938, SOC 3221, SOC 3304, SOC 3603, SOC 3604, SOC 3611, SOC 3616, SOC 3704, SOC 3724, SPAN 3893*, SPAN 4755, THTR 2781, THTR 3741

*With topic approval by the director of undergraduate studies

General Engineering

Engineering Science Major (Bachelor of Science)

Engineering Management

Communication of Science and Technology

Minors

Curriculum Requirements

Engineering Management Minor

DIRECTOR Yiorgos Kostoulas

PROFESSORS OF THE PRACTICE David A. Berezov, Graham S. Hemingway, Yiorgos Kostoulas, David A. Owens, Kenneth R. Pence, Christopher J. Rowe

ASSOCIATE PROFESSORS OF THE PRACTICE Graham S. Hemingway, Grayson McClain

ASSISTANT PROFESSORS OF THE PRACTICE Lynne Cooper, Courtney L. Johnson

LECTURER Julie S. Birdsong

ADJOINT PROFESSORS OF THE PRACTICE: John A. Bers, J. Caleb Clanton

The Division of General Engineering administers the engineering science major, the engineering management minor, and the first-year introduction to engineering course. The division oversees non-traditional engineering study and advises students on course selection to meet specific career goals that traditional engineering majors may not provide.

COURSES OFFERED: ENGM, ES

Engineering Science Major (Bachelor of Science)

The engineering science major is flexible and interdisciplinary—offering students the opportunity to select a program of study to meet special interests or objectives. Many students choose a program of study in engineering management, communication of science and technology, various engineering concentrations, environmental science or materials science; however, students may develop unique plans of study to specialize in areas for which facilities and faculty competence exist but which are not covered within a single existing degree program at Vanderbilt. Engineering science graduates may establish careers in engineering or science, interface with engineers (e.g., in marketing and sales), or use their analytical and problem-solving skills to build future professional careers. Defined areas of concentration exist in engineering management, communication of science and technology, secondary education, and materials science and engineering. Individual programs have been developed for students interested in careers in engineering mathematics, environmental engineering, transportation engineering, teaching, technical communications, and other areas requiring nontraditional combinations of engineering courses. Because of the flexible nature of the engineering science programs of study, accreditation has not been sought for these programs of study, and engineering science majors will not qualify for engineering licensure in most states.

Engineering Management. Engineering management is an interdisciplinary program of study designed to give students the tools to manage technology development and innovation, to enhance manufacturing quality and productivity in a competitive international environment, and to implement these objectives successfully in an organization. Engineering management links engineering, science, and the management disciplines. In addition to the core science and math courses required of all engineering students, topics of study include entrepreneurship, human resources management, finance in technology-based organizations, technology strategy, communications, and operations.

Communication of Science and Technology. Many careers that are attractive to graduates of the engineering science program require the communication of engineering and science to people who are not technically trained. The Communication of Science and Technology interdisciplinary program prepares engineering students for careers in areas such as technical consulting, high-technology marketing and sales, environmental law, and journalism. The program combines traditional engineering and science courses with communications and humanities courses in a flexible curriculum. Engineering science majors may select from a set of program electives identified by the faculty committee of the School of Engineering and the College of Arts and Science that supervises the program.

Minors. Students may also pursue a minor consisting of at least five courses of at least three credit hours within a recognized area of knowledge. Minors are offered in engineering management, materials science and engineering, computer engineering, electrical engineering, computer science, scientific computing, environmental engineering, energy and environmental systems, nanoscience and nanotechnology, and most disciplines within the College of Arts and Science. Students must declare their intention to pursue minors by completing forms available in the Office of Academic Services of the School of Engineering.

Curriculum Requirements

The B.S. in engineering science requires a minimum of 121 hours, distributed as follows:

1. Basic Science (16 hours). CHEM 1601, 1601L plus 12 hours from BSCI 1510, 1510L, 1511, 1511L; CHEM 1602, 1602L; PHYS 1601, 1601L, 1602, 1602L; or MSE 1500, 1500L with two courses in a single discipline.
2. Mathematics (14 hours). MATH 1300, 1301, 2300 and 3 hours from MATH courses numbered 2400 and above.
3. Engineering (43 hours).
    a. Engineering Fundamentals (12 hours): CS 1100 or 1101 or 1103 or 1104; ES 1401, 1402, 1403, 2100W; ENGM 3700.
    b. Engineering Core (12 hours): To be selected from courses in any of the following disciplines: BME,

CHBE, CE, CS, DF, ECE, ENVE, MSE, ME, NANO, and SC (except BME 1105; CS 1000, 1151; and any School of Engineering courses numbered 2860).

c. Engineering Electives (15 hours): To be selected from any School of Engineering courses (including ES and ENGM), except BME 1015; CS 1000, 1151; ES 1115, 2700, 3884; ENGM 2440, 4800; and any School of Engineering courses numbered 2860.
d. Senior Capstone (4 hours): ES 4951, ES 4959.

4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Open Electives (6 hours).
6. Program Concentration (24 hours). In consultation with the academic adviser, each student must identify a meaningful sequence of courses, not counting certain introductory-level courses, that directly contributes to meeting stated career goals. Program concentrations are approved by the academic adviser and the program director in advance and become part of the student's degree audit.

The preparation provided by the program concentration, together with a solid foundation in basic engineering courses, provides the engineering science student a strong and useful career base.

No more than 24 credit hours of business-related course work (BUS, BUSA, ENGM, FNEC, MGRL) may be applied to the ES degree program. Only one business-related minor (BUS, ENGM, FNEC, MGRL, HOD) may count to a student's academic program. No more than 6 credit hours of courses numbered 3840 to 3879 in any program may be applied to the ES degree program.

Undergraduates in engineering science may apply the pass/ fail option only to courses taken as liberal arts core or open electives, subject to the school requirements for pass/fail. UNIV courses are eligible for open elective credit only. Credit for the senior capstone sequence (4 hours) satisfies the Immersion Vanderbilt requirement.

Engineering Management Minor

Engineering management is an interdisciplinary program of study designed to expose engineering students to the concepts and theories of the management of the engineering function, the critical elements of technology development and innovation, and the implementation of such ideas in manufacturing, engineering, and technology environments. Approximately two-thirds of all engineers spend a substantial portion of their professional careers as managers. In the complex, competitive world of technology-driven industry, skilled engineers who understand the essential principles of management and business have a competitive advantage.

The program in engineering management prepares students to work effectively in developing, implementing, and modifying technologies and systems. The ability to manage and administer large technical engineering and research projects and budgets will continue to challenge engineering management skills.

The engineering management minor is designed to provide a working knowledge of the fundamentals of management and innovation.

The minor program consists of 15 hours of course work, some of which may be taken as electives associated with the student's major program. Five courses are required: four core courses and the remaining course chosen from a list of electives.

Program Requirements

The student must take the following four courses:

ENGM 2210 Technology Strategy

ENGM 2440 Applied Behavioral Science

ENGM 3010 Systems Engineering

ENGM 3700* Program and Project Management

The student must select one of the following courses:

ENGM 2160 Engineering Economy

ENGM 3100 Accounting and Finance for Engineers

ENGM 3200 Technology Marketing

ENGM 3300 Technology Assessment and Forecasting

ENGM 3350 Organizational Behavior

ENGM 3600 Technology-Based Entrepreneurship

ENGM 3650 Operations and Supply Chain Management

ENGM 4500 Product Development

CE 4300 Reliability and Risk Case Studies

ENVE 4305 Enterprise Risk Management

ES 2900 Engineering and Public Policy

*Students majoring in civil or electrical and computer engineering may substitute CE 4400 or ECE 4950 for ENGM 3700.

German, Russian and East European Studies

Program of Concentration in German Studies

Honors Program in German Studies

Minor in German Studies

Study Abroad

Program of Concentration in German and European Studies

Program of Concentration in Russian Studies

Study Abroad

Honors Program

Minor in Russian Studies

Program of Concentration in European Studies: Russia and Eastern Europe

Licensure for Teaching

CHAIR Christoph Zeller

DIRECTOR OF UNDERGRADUATE STUDIES IN GERMAN Silke Schade

DIRECTOR OF UNDERGRADUATE STUDIES IN RUSSIAN Denis Zhernokleyev

DIRECTOR OF GRADUATE STUDIES Meike G. Werner

PROFESSORS EMERITI Barbara Hahn, Konstantin V. Kustanovich, Richard Porter, Peggy Setje-Eilers, Frank Wcislo

PROFESSORS Celia Applegate, Jennifer Fay, Emily Greble, Joel Harrington, Lutz Koepnick, Helmut Smith, Christoph Zeller

ASSOCIATE PROFESSORS Alexander Joskowicz (Jewish Studies), James McFarland, Karen Ng, Meike G. Werner

ASSISTANT PROFESSOR Simone Stirner

ASSISTANT PROFESSORS OF THE PRACTICE Albina Khabibulina, Silke Schade

MELLON ASSISTANT PROFESSOR: Abigail Holekamp

SENIOR LECTURERS David Matthew Johnson, Juntao Li, Claire Scott, Denis Zhernokleyev

COURSES OFFERED: GER, RUSS

German, Russian and East European Studies takes students beyond the headlines to gain in-depth understanding of some of the world's most influential nations and cultures. The department's interdisciplinary curriculum provides a wide range of intellectual experiences, whether your primary interest is in literature, film, visual culture, music, history, thought, or politics. For students who want to engage with German, Russian, or East European culture in a more substantive way, the department offers programs of concentration in German Studies and in Russian Studies.

The department sponsors lectures on topics related to German, Russian and East European society and culture, films, symposia, and other German- and Russian-themed activities. Students are encouraged to apply for living space in McTyeire International House in the German and Russian sections. German Studies majors with sufficient academic qualifications are invited to join Delta Phi Alpha, the national German honor society. Russian Studies majors with sufficient qualifications are invited to join Dobro Slovo, the national Slavic honor society.

Many students majoring in German Studies enroll in study abroad programs in Bremen or Freiburg, Germany. Less formal activities, such as a weekly Kaffeestunde or the Stammtisch at a local pizza parlor, are also open to undergraduates. For further information, please see as.vanderbilt.edu/grees.

The Russian and East European Studies program has a special commitment to undergraduate training in all aspects of Russian language and the cultures and histories of the larger region. Students have several possibilities for *studying abroad* in Russia, including summer-, semester- and year-long programs in Moscow and St. Petersburg, where they have the option of studying history, politics, economics and/or culture alongside the Russian

language. For further information, please see as.vanderbilt.edu/grees.

Program of Concentration in German Studies

A major in German Studies offers deep engagement with the language, history, and culture of Germany and other German-speaking cultures. Students majoring in German Studies gain advanced proficiency in speaking and writing German, a detailed understanding of the complex and often haunting history of modern Germany, and rich insights into the unique work of German writers, filmmakers, artists, musicians, and thinkers. Students are required to complete a total of 30 credit hours of course work beyond GER 1102, including the following:

Core courses: *6 credit hours in 2440, 2441, or 2443*	6
Beginning and intermediate German language in context: *up to 9 credit hours of 1102, 2201, 2202, 3201, 3202W*	up to 9
Advanced German language in context: *at least 6 credit hours in 3201, 3202W, 3211*	at least 6
Electives in German culture and history taught in German: *at least 6 credit hours of any course in German between 4551–4557*	6
Electives in German culture and history taught in English: *up to 12 credit hours of courses taught in English above 2443*	12
Total credit hours:	30

Students are permitted to count a maximum of 6 credit hours of instruction in courses outside the GER subject area toward the major, with the approval of the director of undergraduate studies in German; such course work will count toward the 6 credit hour total for elective courses in German culture and history taught in English. Up to 6 credit hours earned through AP exams or transferred from other institutions may count toward the major. Up to 6 credit hours transferred per semester of study abroad may count toward the major.

German Language Proficiency

In addition, students majoring in German will be tested for language proficiency during their senior year and will be required to submit a paper written for one of their courses due the semester prior to graduation. The director of undergraduate studies in German should be consulted for details on these special learning outcome assessments.

Honors Program in German Studies

Candidates for honors in German who meet College of Arts and Science and departmental requirements must complete all requirements for the concentration in German. In addition, students

- must study a minimum of one semester at a German-speaking university (or gain the equivalent experience);
- complete 3 credit hours beyond the basic course requirements, in the form of a course taught in German above GER 4550;
- maintain at least a 3.0 cumulative GPA in courses that count toward the German major and a 3.30 cumulative GPA;
- complete 3 credit hours of 4999. Write an honors thesis and pass an oral examination during their final semester.

Minor in German Studies

A minor in German documents a student’s basic competence in the German language as well as familiarity with German-speaking culture. Students can fulfill the requirements of a minor concentration in German by taking GER 2440, 2441, or 2443 and 15 credit hours in the GER subject area, of which 6 credit hours must be earned in courses taught in the German language, for a total of 18 credit hours.

Study Abroad

Students majoring in German Studies are strongly encouraged to complete an immersive German-language

experience in a German-speaking country. Further information is available through the director of undergraduate studies and the Global Education Office.

Program of Concentration in German and European Studies

Students pursuing the interdisciplinary major in German and European studies combine their focus on German language and literature with a study of modern Europe in its political, economic, and cultural diversity. The German and European studies joint major consists of a minimum of 30 credit hours of course work. A semester of study abroad in a German-speaking country is recommended.

Course work for the major is distributed as follows:

German (15 credit hours)

- Language courses (6 credit hours): GER 3201 and 3202W
- Great German Works, History of German Thought, or History of German Cinema (3 credit hours): GER 2440, 2441, or 2443
- German culture in English (3 credit hours); any course between GER 2551–2557, or appropriate substitute approved by the director of undergraduate studies in German
- German culture (3 credit hours): any course between GER 4551–4558

European Studies (15 credit hours)

- European Studies core courses (3 credit hours): EUS 2201 or 2203
- European Studies courses or alternative topical courses as approved by major adviser (9 credit hours)
- Senior Tutorial (3 credit hours): EUS 4960 or equivalent course in German

Program of Concentration in Russian Studies

A major in Russian Studies entails deep and sustained engagement with the language, history, and culture of Russia and Russian speaking communities around the world. As one of the most dynamic actors on the world stage, Russian culture has been at the forefront of the history of literature, film, and visual arts, has produced some of the world’s deepest aesthetic engagements with the human condition, and has been at the vanguard of politics both repressive and progressive. Students are required to complete a minimum of 30 credit hours of course work. AP and IB exam credit will not count toward credit hours required for the concentration, but placement exams will be offered for RUSS 1101 and/or 1102. A maximum of 6 credit hours toward the language or elective requirements may be earned from Vanderbilt-approved courses taken from other U.S. institutions or through study abroad programs.

Core course

- RUSS 1500 (3 credit hours)

Language courses in Russian

- RUSS 1102 [prerequisite 1101] (4 credit hours)
- RUSS 2201–2202 (8 credit hours)
- Two courses in Russian above RUSS 3000 (6 credit hours)

Elective courses 9 credit hours minimum

The 9 credit hours of elective credit may be earned from RUSS courses in Russian above 3000, or in English-language courses with the RUSS subject code (see the list of qualifying courses below). Students concentrating in Russian will be expected to take an assessment exam prior to graduation.

Study Abroad

Students majoring in Russian studies are strongly encouraged to complete an immersive Russian-language experience in the Russian Federation or another Russian-speaking country. Further information is available through the director of undergraduate studies and the Global Education Office.

Honors Program

Majors with a cumulative GPA of 3.30 or higher may apply to the Honors Program prior to registration of second semester junior year. They will submit a 6 credit hour program of study that couples a RUSS-designated course above 2202 in the first semester senior year with RUSS 4999, Senior Honors Thesis, in the second semester of the senior year. This program must have the approval of the departmental faculty member who will serve as the senior thesis adviser. The senior thesis is defended in the second semester of the senior year before a faculty committee, which may award Honors or High Honors in Russian to the baccalaureate degree.

Minor in Russian Studies

Requirements for a minor in Russian studies include a minimum of 17 credit hours of course work. Required courses are RUSS 1101–1102 and one English-language course with the RUSS subject code (3 credit hours; see the list of qualifying courses below). The remaining 6 credit hours may be earned either from Russian- and English-language courses with the RUSS subject code (see the list of qualifying courses below) or from other relevant courses with approval of the director of undergraduate studies. A maximum of 6 credit hours toward the Russian minor may be earned from Vanderbilt-approved courses taken from other U.S. institutions or through study abroad programs. AP and IB exam credit will not count toward credit hours required for the minor, but placement exams will be offered for RUSS 1101 and/or 1102.

Russian- and English-language courses with the RUSS subject code that qualify for the elective credit hours required for the concentration and minor in Russian:

1874, 1910W, 1911W, 2201–2202 [minor only], 2210, 2230, 2273, 2434, 2435, 2438, 2485, 2537, 2639, 2745, 2800, 2810, 2910, all 3000-level courses, and 4999.

Program of Concentration in European Studies: Russia and Eastern Europe

Students pursuing the interdisciplinary European Studies major in Russia and Eastern Europe combine their focus on Russian and East European societies with a study of modern Europe in its political, economic, and cultural diversity. Students may elect this interdisciplinary major consisting of 29 credit hours of course work. A semester of study abroad in Russia or Eastern and Central Europe is recommended. Course work for the major is distributed as follows

Russian and East European Studies (17 credit hours)

- 8 credit hours in Russian language: either RUSS 1101–1102 (8 credit hours), or equivalent in another East European language, or RUSS 2201–2202 (8 credit hours), or equivalent in another East European language. Other East European languages include Albanian, Bulgarian, Czech, Croatian/Bosnian/Serbian, Hungarian, Romani, Romanian, Polish, Slovak, or Yiddish.
- 9 credit hours of topical courses on Russia or Eastern Europe in RUSS or as approved by the major adviser

European Studies (12 credit hours)

- EUS 2201, European Society and Culture (3 credit hours) or EUS 2203, The Idea of Europe (3 credit hours)
- 6 credit hours of courses in EUS or alternative topical courses as approved by the major adviser
- EUS 4960, Senior Tutorial (3 credit hours) or equivalent 3 credit hour course in RUSS

Licensure for Teaching

Candidates for teacher licensure in German at the secondary level should refer to the chapter on Licensure for

Teaching in the Peabody College section of this catalog.

German

Students with some experience in German should consult the department for placement.

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Russian

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Hebrew

DIRECTOR OF UNDERGRADUATE STUDIES Rebecca Epstein-Levi

ASSISTANT PROFESSOR Mazalit Haim

COURSES OFFERED: HEBR

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

History

Program of Concentration in History

Program of Concentration in Law, History, and Society

Honors Program

Program of Concentration in Economics and History

Licensure for Teaching

Minor in History

CHAIR Emily Greble

VICE CHAIR Ari Bryen

DIRECTOR OF UNDERGRADUATE STUDIES Thomas Alan Schwartz

DIRECTOR OF LAW, HISTORY, AND SOCIETY Thomas Alan Schwartz

DIRECTOR OF ECONOMICS AND HISTORY Jefferson Cowie

DIRECTOR OF GRADUATE STUDIES Ari Bryen

PROFESSORS EMERITI David Blackbourn, Richard J.M. Blackett, David Lee Carlton, James A. Epstein, Jimmie L. Franklin, V. Jacque Voegeli, Donald L. Winters, Francis W. Wcislo

PROFESSORS Celia Applegate, Michael D. Bess, William Caferro, William Collins, Jefferson Cowie, Katherine B. Crawford, Dennis C. Dickerson, Marshall C. Eakin, Gerald Figal, Emily Greble, Leor Halevi, Joel F. Harrington, Yoshi Igarashi, Sarah Igo, Peter Lake, Jane Gilmer Landers, Thomas McGinn, Moses Ochonu, David Price, Thomas Alan Schwartz, Helmut Walser Smith, Arleen M. Tuchman, Daniel H. Usner Jr., David Wasserstein, Edward Wright-Rios

ASSOCIATE PROFESSORS Ari Bryen, Brandon Byrd, Celso Castilho, Lauren Clay, Nicole Hemmer, Paul A. Kramer, Peter Lorge, Catherine Molineux, Ruth Rogaski, Samira Sheikh, Francis W. Wcislo

ASSISTANT PROFESSORS Samuel Dolbee, Ole Molvig, Tasha Rijke-Epstein, Frank Robinson, Meng Zhang

COURSES OFFERED: HIST

More than one hundred courses in the Department of History are available to Vanderbilt undergraduates. Some focus on a particular historical period, others on a particular region of the world, and still others on topics that may cross traditional chronological and geographical boundaries. The department is committed to the principle that in a changing world, the way we learn about the past must also change. It will continue to develop new courses for the twenty-first century, with an emphasis on those that recognize the interconnections among the various civilizations and regions of the globe.

Unless indicated otherwise in the course description, history courses have no prerequisite. Except for History 3980, 4960, 4980–4981, and 4999, courses numbered below 5000 are open to all majors and nonmajors. History 4960 is limited to seniors and juniors who have previously taken History 3000W. History 3980, 4980–4981, and 4999 are limited to students who have been admitted to the History Honors Program.

Students will find that the study of history offers not only a strong foundation for a liberal education but also a means of understanding the contemporary world. The skills developed in gathering, assessing, and synthesizing information have wide application in many careers, including business and the professions.

The Department of History offers a major and minor in history; a major in law, history, and society; and, in cooperation with the Department of Economics, a joint major in economics and history, which is described in this catalog under Economics and History.

Program of Concentration in History

The major program requires a minimum of 30 credit hours in history; no more than 3 credit hours of AP or IB credit may count toward this total. Note: AP and IB credit will not count toward the 15 credit hours for the concentration.

Course work is distributed as follows:

1. 3000W or 3980 (3 credit hours)

Note: 3000W or 3980 is a prerequisite for the 4960 capstone course. 3980 is limited to second-semester juniors who have been admitted to the Honors Program. Students entering the Honors Program who have already taken 3000W will receive elective credit for that course.

2. Five courses in one of the following concentrations (15 credit hours):

A. Asia
B. Latin America
C. Europe
D. Early America and the United States
E. Middle East and Africa
F. Global and Transnational
G. Science, Medicine, and Technology
H. Comparative History/Special Topics

See below for a list of courses that count for Concentrations A, B, C, D, E, F, and G. Students choosing concentration H must have the approval of their adviser and the director of undergraduate studies for a specific program of study. First-Year Writing Seminars (1111) in history may be used to satisfy the relevant program concentration with approval of the director of undergraduate studies.

Program A. Asia

1038, 1039, 1050, 1060, 1061W, 1070, 1090, 1160, 1161, 1162, 1200, 1881, 1882W, 2100, 2105, 2107, 2108, 2108W, 2110, 2111, 2114, 2115, 2119, 2120, 2140, 2150, 2160, 2180, 2658, 3090, 3110, 3111, 3112W, 3190, 3220, 3220W, 3230, and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, 4999; ASIA 2411, 2413, 2511, 2630; MHS 2310.

Program B. Latin America

1038, 1039, 1368, 1370, 1375, 1378, 1379W, 1380, 1383, 1384, 1385W, 1469, 2102, 2450, 2457, 2470, 2480, 2490, 2510, 2530, 2535, 2540, 2542, 2544, 2570, 2845, 3100, 3112, 3220, 3230, 3280, and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; AADS 4256.

Program C. Europe

1038, 1039, 1040W, 1200, 1320, 1345, 1350, 1352, 1355W, 1360, 1470, 1480, 1500, 1510, 1510L, 1520, 1580, 1582W, 1584W, 1586W, 1600, 1695W, 1700, 1725W, 1760, 2130, 2135, 2140, 2160, 2170, 2190, 2220, 2230, 2237, 2238, 2240, 2250, 2255, 2260, 2270, 2280, 2290, 2293, 2294, 2300, 2310, 2340, 2380, 2382, 2383, 2385, 2410, 2450, 2595W, 2658, 2660, 2720, 2760, 2760W, 2800, 2835, 2840, 3010, 3050, 3070W, 3100, 3110, 3120, 3150, 3180, 3190, 3210, 3230, 3240, 3240W, 3260, 3270, 3275, 3290, 3310W, 3333 and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; CLAS 2100, 2110, 2120, 2150, 2160, 2180, 3110; ECON 3160; EUS 2201, 2208, 2220; GER 2442, 2554, 2563; JS 1111.09, 1220, 1240, 2450, 2540, 3100, 3210; PHIL 2100; RLST 2250W, 3316, 3350, 4371; RUSS 2800, 2810, 2820, 2910, 2915.

Program D. Early America and the United States

1038, 1039, 1200, 1320, 1353, 1375, 1383, 1385W, 1390, 1395, 1400, 1405, 1410, 1420, 1422W, 1425W, 1427, 1427W, 1430W, 1431, 1438, 1440, 1469, 1480, 1500, 1520, 1605, 1610, 1640, 1650, 1660, 1665, 1667, 1669, 1690, 1691, 1693, 1699, 1710W, 1725W, 1730, 1735W, 1740, 1770, 1780W, 2111, 2119, 2239, 2240, 2530, 2535, 2542, 2550W, 2580, 2590, 2595W, 2600, 2610, 2620, 2630, 2640, 2650, 2655, 2660, 2662, 2684, 2685, 2686, 2689, 2690, 2691, 2692W, 2700, 2710, 2720, 2721, 2722, 2725, 2730, 2735, 2740, 2749, 2750, 2752, 2760, 2780, 2800,

2810, 2840, 2845, 2855, 2860, 3010, 3112, 3030, 3040, 3045W, 3050, 3070W, 3100, 3110, 3140, 3170, 3190, 3230, 3240W, 3285, 3333 and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; AADS 2214; AMER 1700W; ECON 2150, 3150; HOD 1115; JS 1240, 2540, 2560; MHS 2110.

Program E. Middle East and Africa

1038, 1039, 1161, 1190, 1200, 1269, 1270, 1270W, 1271W, 1280, 1281W, 1725W, 2137, 2138, 2139, 2140, 2154, 2155, 2160, 2170, 2180, 2190, 2413, 2413W, 2510, 2660, 3150, 3190, 3200, 3209, 3210, 3230, and, as appropriate, 3746, 3850, 3882, 3883, 3890, 4960, 4980–4981, and 4999; AADS 2106; CLAS 2180, 3010; JS 1111.09, 1200, 1220, 1240, 2540, 2600, 2620, 3210; RLST 4371.

Program F. Global and Transnational

1038, 1039, 1040W, 1162, 1190, 1200, 1270, 1270W, 1271W, 1280, 1345, 1353, 1368, 1370, 1378, 1379W, 1380, 1383, 1385W, 1469, 1470, 1515, 1525, 1530, 1600, 1605, 1610, 1665, 1691, 1695W, 1700, 1725W, 1740, 1881, 2106, 2110, 2130, 2135, 2137, 2138, 2139, 2140, 2150, 2160, 2170, 2180, 2190, 2238, 2294, 2413, 2413W, 2450, 2457, 2480, 2490, 2530, 2535, 2540, 2542, 2570, 2595W, 2658, 2660, 2700, 2710, 2721, 2722, 2725, 2735, 2740, 2760, 2760W, 2790, 2835, 2840, 2845, 3010, 3100, 3110, 3112W, 3120, 3150, 3190, 3209, 3215, 3220, 3230, 3333, and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; ASIA 2413, 2630; CLAS 2120, 2180, 3010, 3110; JS 1200, 1220, 1240, 2450, 2540, 2845, 3000, 3100; EUS 2220; MHS 2110; RLST 3306, 4371; RUSS 2810, 2820, 2910, 2915.

Program G. Science, Medicine, and Technology

Students may meet the requirement by taking five courses from the SMT list, among which not more than two may be courses outside the Department of History.

1385W, 1470, 1480, 1500, 1510, 1510L, 1515, 1520, 1525, 1530, 1780W, 2108, 2108W, 2139, 2160, 2413W, 2780, 2790, 2800, 2810, 3040, 3045W, 3050, 3070W, 3110, 3230, 3333 and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; ANTH 4373; ASIA 2630; ASTR 2130; ENGL 3720 or 3720W; MATH 3000; MHS 2110, 2310, 2320, 2430; and other courses, as appropriate, with approval of the director of undergraduate studies.

3. Capstone course (3–6 credit hours)

One of the following, to be taken in the junior or senior year; all of the options will require the student to write a major paper. Any capstone course within the student's area of concentration will count toward the five-course requirement for that concentration.

Option 1: 3883, Internship Research (3 credit hours). Must be taken in conjunction with 3880 (internship training). Prerequisite: 3000W. *Note:* a student may take 3883 as an elective before completing 3000W but in this case 3883 will not count as a capstone course.

Option 2: 4960, Majors Seminar (3 credit hours). Prerequisite: 3000W.

Option 3: 4980–4981, Senior Honors Seminar (6 credit hours). Limited to seniors in the History Honors Program. *Note:* At the discretion of the director of honors and the director of undergraduate studies, a student who has taken 4980 but does not take 4981 may be considered to have fulfilled the capstone requirement for the major.

4. Electives (6–12 credit hours, depending on the nature of the capstone course)

Program of Concentration in Law, History, and Society

As a human institution self-consciously aware of its past, “The Law” raises a complex set of issues that can be addressed historically. Legislation and jurisprudence, for example, allow historians a privileged perspective into how societies sought to define themselves, their values, and their membership. Constitutions provide maps of political power, and serve as sites of struggle over goods both real and symbolic. Records of legal practice are often well preserved, allowing access to the voices and actions of people who are usually left out of systems of political organization.

This major approaches law from both a historical and an interdisciplinary perspective. Emphasis will be placed on close reading of legal documents, research in legal archives, and analytical writing. Students will be encouraged to develop reading programs and research topics that stretch across national and chronological boundaries, and to think comparatively. Students may not major both in history and in law, history, and society. Students majoring in law, history, and society may apply to receive honors through the History Honors Program.

The major program requires a minimum of 30 credit hours in history; no more than 3 credit hours of AP or IB credit may count toward this total. *Note:* AP and IB credit will not count toward the 15 credit hours for the concentration. No more than 6 credit hours may be from courses outside the Department of History.

Course work is distributed as follows:

1. History Workshop. 3000W or 3980 (3 credit hours)

Note: 3000W is a prerequisite for the 4960 capstone course. 3980 is limited to second-semester juniors who have been admitted to the Honors Program. Students entering the Honors Program who have already taken 3000W will receive elective credit for that course.

2. Law, History, and Society: Five courses from the following:

1040W, 1061W, 1271W, 1345, 1352, 1379W, 1383, 1384, 1385W, 1430W, 1580, 1584W, 1667, 2130, 2135, 2155, 2190, 2237, 2238, 2239, 2240, 2290, 2293, 2294, 2450, 2580, 2590, 2610, 2658, 2662, 2690, 2691, 2692W, 2750, 2760, 2760W, 2855, 2860, 3170, 3209, 3290, and as appropriate, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; CLAS 3150, 3160; CMST 3150; ECON 4210; ENGL 3734; FREN 4232; GSS (formerly WGS) 3271, 3281; JS 2150; MHS 2320; PSCI 1103, 2208, 2226, 2251, 2262, 2265, 2266, 3260; RUSS 2485, 2810, 2820, 2910, 2915; SOC 3605, 3611, 3613, 3621; 3624; and other courses, as appropriate, with approval of the director of undergraduate studies of Law, History, and Society.

Note: First-Year Writing Seminars (1111) in history may be used to satisfy the relevant program concentration with approval of the director of undergraduate studies of Law, History, and Society.

3. Capstone course (3–6 credit hours)

One of the following, to be taken in the junior or senior year; all of the options will require the student to write a major paper, the topic of which must be approved by the director of undergraduate studies of law, history, and society. Any capstone course on a topic concerning law, history, and society will count toward the five-course requirement for the program concentration.

Option 1: 3883, Internship Research (3 credit hours).

Must be taken in conjunction with 3880 (internship training). Prerequisite: 3000W. Note: a student may take 3883 as

an elective before completing 3000W but in this case 3883 will not count as a capstone course.

Option 2: 4960, Majors Seminar (3 credit hours).

Prerequisite: 3000W.

Option 3: 4980–4981, Senior Honors Seminar (6 credit

hours). Limited to seniors enrolled in the History Honors Program. *Note:* At the discretion of the director of honors and the director of undergraduate studies in law, history, and society, a student who has taken 4980 but does not take 4981 may be considered to have fulfilled the capstone requirement for the major.

4. Electives (6–12 credit hours in history, depending on the nature of the capstone course)

Electives may include any courses, not used to satisfy any of the above requirements, offered by the Department of History or listed above in major requirement #2.

Honors Program

The Honors Program in History is a three-semester program of study. It offers superior undergraduate history majors a program of advanced reading, research, and writing. The Honors Program combines seminar work and independent study under the supervision of a thesis adviser. This structure provides participants an introduction to historical research and writing, as well as the opportunity to study defined areas of history and significant historical problems that accord with their own interests. The final objectives of the Honors Program are successful authorship of the honors thesis and graduation with honors or highest honors in the major.

Students apply to the Honors Program in the first semester of the junior year. Students meeting college and departmental requirements will enroll for a total of 12 credit hours: History 3980, Junior Honors Seminar in History (3 credit hours); History 4980–4981 Senior Honors Research Seminar (6 credit hours); and 4999, Senior Honors Thesis (3 credit hours). In addition, the Honors Program requires an oral defense of the honors thesis before a faculty committee at the end of the third semester.

Program of Concentration in Economics and History

This is an interdisciplinary program split between economics and history that provides a more focused program of study while requiring fewer credit hours than a double major in the two fields. See the Economics and History section of this catalog for details.

Licensure for Teaching

Candidates for teacher licensure in history at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Minor in History

The minor in history requires a minimum of 18 credit hours in courses that are offered by the Department of History or that are listed above in programs A–G of the history major, among which no more than two courses may be outside the Department of History. At least 9 credit hours must be taken at the 2000 level or higher. Students must complete 3000W. No more than 3 credit hours of AP or IB credit may count toward this total.

History of Art and Architecture

Program of Concentration in History of Art

Program of Concentration in Architecture and the Built Environment

Honors Program

Minor in History of Art

Minor in Architecture and the Built Environment

CHAIR Kevin D. Murphy

DIRECTOR OF UNDERGRADUATE STUDIES Sheri Shaneyfelt

DIRECTOR OF GRADUATE STUDIES Sheri Shaneyfelt

PROFESSORS EMERITI Robert A. Baldwin, Vivien Green Fryd, Robert L. Mode, Ljubica D. Popovich

PROFESSORS Leonard Folgarait, Kevin D. Murphy

ASSOCIATE PROFESSORS Tracy Miller, Elizabeth J. Moodey, Betsey A. Robinson, Rebecca K. VanDiver

MELLON ASSISTANT PROFESSOR Boyoung Chang

ASSISTANT PROFESSOR OF THE PRACTICE Matthew Worsnick

PRINCIPAL SENIOR LECTURER Sheri Shaneyfelt

SENIOR LECTURER Susan Dine

COURSES OFFERED: HART

The Department of History of Art and Architecture treats critically the major fields in world art, from ancient to contemporary, and serves to connect the arts to the other humanities. Many students will use the program in history of art and architecture as a foundation for careers in which analytical reading and writing skills gained in the major are especially valued: as the basis for advanced training in professional schools (such as architecture, law, medicine, journalism, and business), for postgraduate work in history of art or architecture, and for employment in galleries, museums, or design-related fields. A major goal of the department is to help students become readers of visual images and material culture throughout their lives, as well as to encourage visual approaches to learning.

Majors in history of art and architecture participate in the activities of the Vanderbilt History of Art Society and work closely with departmental advisers. The History of Art Society and the department sponsor events such as panels, lectures, debates, and other programs where majors meet and engage in discussions with historians of art and museum curators.

The department curriculum complements those of related departments and programs, including African American and Diaspora Studies, American Studies, Anthropology, Asian Studies, Cinema and Media Arts, Classical and Mediterranean Studies, European Studies, Gender and Sexuality Studies, Latin American Studies, and Religious Studies.

The Department of History of Art and Architecture offers a major and minor in history of art, and a major and minor in architecture and the built environment.

Program of Concentration in History of Art

The history of art major requires 30 credit hours and gives students the opportunity to study art and visual culture across a wide range of historical periods, from ancient to contemporary. The program is designed to allow for concentration in particular periods and areas of interest. By requiring courses in both the lecture and seminar format, the program aims to provide a basis of comprehensive knowledge and challenging opportunities for more specialized instruction.

Students should consider related offerings in cognate disciplines in the humanities and social sciences. Those planning graduate work in history of art should pursue advanced studies—which may include honors—and take advanced courses in other departments offering complementary course work. Advanced language studies are strongly recommended, as graduate programs expect reading facility in one language for the M.A. and two for the Ph.D., with French and German the most commonly required. Non-European languages should be considered for those primarily interested in non-Western traditions.

Course work is distributed as follows:

- A 1000-level course (3 credit hours): Students must complete one 1000-level survey course in history of art or architecture selected from HART 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1220, 1300, or 1400. This course is not a prerequisite for further history of art course work but must be taken at Vanderbilt; AP credit will not be accepted.
- Area requirements (15 credit hours)—five history of art courses at the 2000 level or above, one each from the following areas:
    a. Ancient: HART 2200, 2210, 2220, 2230, 2250, 2260, 3224, 3226, 3228W, 3240W, 3252, 3256W; CLAS 2250, 3200, 3710, 3720, 3730
    b. Medieval: HART 2270, 2275, 2285, 2288, 2290, 3364W
    c. Renaissance/Baroque: HART 2310, 2320W, 2325, 2330, 2362, 2390, 3320, 3320W, 3332, 3334, 3334W
    d. Modern: HART 2600, 2620, 2622, 2625, 2650, 2660, 2665, 2710, 2720, 2722, 2740, 2750, 2755, 2760, 2765, 3605W, 3712W, 3718W, 3725W, 3740, 3757W, 3766W, 3767W
    e. Global: HART 2100, 2110, 2120, 2130, 2150, 2160, 2170, 2175, 2180, 2192, 3112, 3140, 3164W, 3173W, 3174
- Electives (6 credit hours)—two upper-level courses in history of art (HART 2100 to 3850 and 3890; CLAS 2250, 3200, 3720) in addition to the area requirements.
- Advanced Seminars (6 credit hours)—HART 3000W, 4960

Program of Concentration in Architecture and the Built Environment

The track in architecture and the built environment requires 30 credit hours and promotes interdisciplinary and trans-institutional study. It enables students to develop breadth and expertise in the history and theory of architecture, landscape architecture, and constructed environments; design studies; and theoretical and historical approaches to analyzing urban scale and city planning. Students can build a foundation for graduate work in these fields as well as for spatially related specializations in cognate disciplines such as anthropology, political science, public policy, sociology, demography, public health, environmental studies, civil engineering, computer science, and geography and geographic information systems.

Course work is distributed as follows:

1. A 1000-level course (3 credit hours): Students must complete one 1000-level survey course in history of art or architecture selected from HART 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1210W, 1220, 1300, 1330W, 1400, or 1740W. This course is not a prerequisite for further history of art course work but must be taken at Vanderbilt; AP credit will not be accepted.
2. Three courses (9 credit hours) in architectural, design, landscape, or urban history selected from HART 2100, 2110, 2120, 2130, 2150, 2160, 2175, 2180, 2200, 2210, 2220, 2225, 2230, 2250, 2270, 2275, 2285, 2290, 2650, 2665, 2720, 2722, 2740, 2780, 2782, 2815, 2820, 3112, 3140, 3174, 3252, 3790; and CLAS 2250, 3200.
3. One advanced seminar in architectural history (3 credit hours) selected from HART 3240W, 3256W, 3725W, 3757W, 3766W, 3825W or 3810W (when the course topic concerns architecture and the built environment,

landscape architecture, design studies, or urban planning).

4. Five electives (15 credit hours): Electives may include any HART courses listed above in major requirements 1-3 not used to satisfy any of those requirements, or courses chosen from the list below. A maximum of two electives may be taken from any one department (with the exception of History of Art and Architecture), and a maximum of two electives may be taken at the 1000 level.

Students will work with the Director of Undergraduate Studies and departmental advisers to design a program of study that addresses their academic interests and career goals. Students interested in graduate programs in architecture and design should review elective selections with the pre-architecture adviser.

AFRICAN AMERICAN AND DIASPORA STUDIES: 1016, Race Matters; 1716, The African City: Urban Landscapes on the Page, Screen, and Canvas; 2294, Black Paris-Paris Noir: The African Diaspora and the City of Light; 4506, Slavery and Public Memory

AMERICAN STUDIES: 3200, Global Perspectives on the U.S.

ANTHROPOLOGY: 2101, Theories of Culture; 2110, Gender and Cultural Politics; 2130, Global Infrastructure and Everyday Life; 2150, Urban Ecology; 2214, Art and Architecture in the Ancient Americas; 2220W, Human Landscapes; 2225, Climate Change, Collapse, and Sustainability in History; 3161, Colonial Encounters in the Americas; 3200, Ancient Cities; 3202, The Collapse of Civilizations; 3261, Introduction to Geographic Information Systems and Remote Sensing; 4154, Environmental Anthropology

ART STUDIO: 1101, Introduction to Studio Art; 1102, Drawing and Composition I; 1200, Photography I; 1201, Alternative Photography; 1202, Digital Imaging I; 1300, Painting; 1400, Ceramics; 1401, Sculptural Ceramics; 1500, Sculpture; 1501, Assemblage; 1502, Installation Art; 1503, Text and Image; 1600, Printmaking: Etching and Relief; 1601, Printmaking: Screen and Lithography; 1700, Video Art; 1702, Portable Media I; 1900, Social Collective Art Practice; 2100, Drawing and Composition II; 2102, Drawing: Color Media I; 2200, Photography II; 2202, Digital Imaging II; 2300, Painting II; 2400, Ceramics II; 2401, Concept and Clay: Composite Forms; 2500, Sculpture II; 2600, Printmaking II; 2700, Video Art II; 2702, Portable Media II; 3100, Drawing and Composition III; 3102, Drawing: Color Media II; 3200, Photography III; 3300, Painting III; 3600, Printmaking III

ASIAN STUDIES: 2100W, Fashioning the Self: Coming of Age and Asian Modernities

BIOLOGICAL SCIENCES: 1103/1103L, Green Earth: The Biodiversity and Evolution of Plants; 2238/2238L, Ecology; 3233, Conservation Biology

CINEMA AND MEDIA ARTS: 1600, Introduction to Film and Media Studies; 2400, History of World Cinema

CIVIL ENGINEERING: 2101, Civil and Environmental Engineering Information Systems; 2120, Sustainable Design Civil Engineering; 2200, Statics; 2205, Mechanics of Materials; 3200, Structural Analysis; 3205, Structural Design; 3501, Transportation Systems Engineering; 3600, Environmental Engineering; 4100, Geographic Information Systems (GIS); 4205, Intelligent Transportation Systems; 4320, Data Analytics for Engineers; 4415, Construction Materials and Methods; 4425, Building Information Modeling; 4430, High Performance and Green Buildings; 4505, Urban Transportation Planning; 4950, Civil Engineering Design I; 4951, Civil Engineering Design II

CLASSICAL AND MEDITERRAEAN STUDIES: 1020, Introduction to Mediterranean Archaeology; 3190/3190W, Augustan Rome; 3200, The Greek City; 3710, Archaeology, History, and Culture in Greece: Kenchreai Field School; 3720, History and Art of Ancient Rome; 3730, The Roman to Medieval Near East: Caesarea Excavations, Israel

COMMUNICATION STUDIES: 2800, Rhetoric and Civil Life; 2950, Rhetoric of Mass Media; 3100, Rhetoric of Social Movements; 3700, Politics and Mass Media

COMPUTER SCIENCE: 1000, The Beauty and Joy of Computing; 1101, Programming and Problem Solving; CS 1103 Introductory Programming for Engineers and Scientists; CS 1104 Programming and Problem Solving in Python; 1151, Computers and Ethics

EARTH AND ENVIRONMENTAL SCIENCES: 1510/1510L, The Dynamic Earth: Introduction to Geological Sciences; 2110, Global Climate Change; 2150, Science, Risk, and Policy; 4750, Sustainability: An Environmental Science Perspective; 4760, Agent- and Individual-Based Computational Modeling

ECONOMICS: 1010, Principles of Macroeconomics; 1020, Principles of Microeconomics; 2170, Environmental Economics; 2340, Plunder and Pillage: The Economics of Warfare and Conflict; 3230, Urban Economics

ENGINEERING SCIENCE: 2700, Engineering Career Development; 2900, Engineering and Public Policy

ENGLISH: 3692, Desire in America: Literature, Cinema, and History; 3694, America on Film: Art and Ideology; 3695, America on Film: Performance and Culture; 3730, Literature and the Environment

ENVIRONMENTAL ENGINEERING: 3610, Sustainable Development; 4615, Environmental Assessments; 4700, Energy and Water Resources

EUROPEAN STUDIES: 2201, European Society and Culture; 2203, The Idea of Europe; 2800, Pursuing Utopia: Social Justice and Romanticism in the Alps; 2260, European Cities

FRENCH: 3634, Parisian Geographies: Paris in 19th and 20th Century Art and Literature

GENDER AND SEXUALITY STUDIES: 1160, Sex and Society; 2268, Gender, Race, Justice, and the Environment

HISTORY: 1039, Global History 1453 to Present; 1281/1281W, The Making of African Cities: Histories of Globalization and Migration; 1355W, Innovation and Renovation in Renaissance Europe; 1368, Rio de Janeiro: Culture and Citizenship in the Marvelous City; 1430W, North American Indians and the Environment; 1510/1510L, The Scientific Revolution/Digital History Lab; 1586W, Nazi Germany, the Holocaust, and Digital Humanities; 2220, Medieval and Renaissance Italy, 1000-1700; 2413/2413W, Global History of Waste; 2655, Historic Black Nashville; 2686, Race, Rights, and the American Dream; 2780, Superhuman Civilization; 3050, Innovation; 3140, History of New Orleans; 3150, Cities of Europe and the Middle East; 3180, Making of Modern Paris

HISTORY OF ART AND ARCHITECTURE: 1111.09, Seven Wonders of the Ancient World; 1111.11, Sacred Geographies of China; 1111.12, Pompeii: Life and Death of a Roman City; 1111.17, New York City Architecture

HUMAN AND ORGANIZATIONAL DEVELOPMENT : 3202, Community Development Theory; 3212, Community Development Organizations and Policies

ITALIAN: 3642, Italian Visual Culture; 3701, City Fictions

JEWISH STUDIES: 2450, The Jewish Diaspora; 2520, Zionism: Politics, Religion, and Ethnicity; 3730, The Roman to Medieval Near East: Caesarea Excavations, Israel

MATERIALS SCIENCE AND ENGINEERING: 1500, 1500L, Materials Science I and Laboratory

MATHEMATICS: 1100, Survey of Calculus; 1200, Single-Variable Calculus I; 1201, Single-Variable Calculus II; 1300, Accelerated Single-Variable Calculus I; 1301, Accelerated Single-Variable Calculus II; 2300, Multivariable Calculus; 2310, Multivariable Calculus with Matrix Algebra; 2400, Differential Equations with Linear Algebra

MECHANICAL ENGINEERING: 2160, Introduction to Mechanical Engineering Design; 3248, Heat Transfer; 4258, Engineering Acoustics; 4259, Engineering Vibrations; 4262, Environmental Control

MEDICINE, HEALTH, AND SOCIETY: 1950, Theories of the Body; 2240, Bionic Bodies, Disability Cultures; 3040, Designing Healthy Publics; 3120, Medicine, Technology, and Society

MUSIC LITERATURE: 1660, Music and Tourism: Music City Museum and Memorabilia; 2350, The Music and Culture of Venice; 3230, Music and the Construction of National Identity

NEUROSCIENCE: 2201, Neuroscience

PHILOSOPHY: 1005, Introduction to Ethics; 1111.05, Green Cities; 3013, History of Aesthetics; 3014, Modernistic Aesthetics; 3611, Environmental Philosophy; 3615, Philosophy of Film; 3661, Topics in Aesthetics

PHYSICS: 1010/1010L, Introductory Physics; 1601/1601L, General Physics I; 1602/1602L, General Physics II; 2255/2255L, Modern Physics and the Quantum World; 2275, Classical Mechanics

POLITICAL SCIENCE: 2256, Politics of Public Policy; 3253, Ethics and Public Policy; 3272W, The War in Iraq, 2003-2011; 4257, The Politics of Capitalism

PSYCHOLOGY: 3110, Social Psychology

PUBLIC POLICY STUDIES: 3100, Cities in the 21st Century

RELIGIOUS STUDIES: 2472, Religion, Ecology, and Power in Africa; 3669, Sacred Space in the Tibetan World

RUSSIAN: 2745, Radical Art: The Avant-Garde Revolution; 2800, Viewing Communism in Eastern Europe; 2810, Revolutions and Post-Communisms in Eastern Europe and Eurasia, 1981-2010

SOCIOLOGY: 1030, Environment and Society; 3001, Sociological Perspectives; 3204, Tourism, Culture, and Place; 3206, Creativity and Innovation in Society; 3221, The Family; 3311, Climate Change and Society; 3312, Environment and Development; 3314, Environmental Inequality and Justice; 3315, Human Ecology and Society; 3316, Business, Civil Society, and the Environment; 3317, Energy Transitions and Society; 3321, Population and Society; 3601, Self, Society, and Social Change; 3612, Class, Status, and Power; 3615, Human Behavior in Organizations; 3723, Gender, Sexuality, and the Body

SPANISH: 4810, Images of the City

THEATRE: 1010, 1010W, Fundamentals of Theatre; 1751, Fundamentals of Theatre Design

UNIVERSITY COURSES: 3200, Race, Place, and Power; 3279, Virtual Reality Design; 3350, Design Thinking, Design Doing; 3360, Data Science Methods for Smart City Applications

Honors Program

The honors program in history of art and architecture allows exceptional undergraduate students to undertake independent research on a topic in art or architectural history in consultation with faculty members. The program is open to all history of art and architecture majors with junior standing who have earned a 3.30 grade point average in all university courses and a 3.30 grade point average in history of art courses. They must also be approved for acceptance into the honors program by the department faculty. Completion of the program requires 9 credit hours of study: HART 3850, Independent Research (the second semester of the junior year, unless studying abroad, in which case one is expected to enroll in this class the first semester of the junior year); HART 4998, Honors Research (first semester of the senior year); and HART 4999, Honors Thesis (second semester of the senior year); submission of an honors thesis; and successful completion of an oral defense of the thesis. These independent research credit hours are in addition to the 30 credit hours required for the major in history of art or architecture and the built environment. Students meeting these requirements receive honors or highest honors in history of art or architecture and the built environment, depending on the quality of the thesis, grades in history of art and architecture courses, and defense results. Successful departmental honors students will receive a Vanderbilt diploma that records honors or highest honors in history of art or architecture and the built environment.

Minor in History of Art

The minor in history of art requires 18 credit hours of course work, including the following:

Two 1000-level courses from 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1220, 1300, or 1400, plus any four upper-level

history of art courses (HART 2100 to 3850 and 3890, 4960), and classes designated CLAS 2250, 3200, 3710, 3720, 3730.

Minor in Architecture and the Built Environment

The minor in architecture and the built environment requires 18 credit hours of course work, distributed as follows:

1. A 1000-level course (3 credit hours): Students must complete one 1000-level survey course in history of art or architecture selected from HART 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1210W, 1220, 1300, 1330W, 1400, or 1740W.
2. Three courses (9 credit hours) in architectural, design, landscape, or urban history selected from HART 2100, 2110, 2120, 2130, 2150, 2160, 2175, 2180, 2200, 2210, 2220, 2225, 2230, 2250, 2270, 2275, 2285, 2290, 2650, 2665, 2720, 2722, 2740, 2780, 2782, 2815, 2820, 3112, 3140, 3174, 3252, 3790; and CLAS 2250, 3200.

3. Two electives (6 credit hours): Electives may include any HART courses listed above in minor requirements 1-2 not used to satisfy either of those requirements or courses chosen from the Electives list for the architecture and the built environment major. No more than one elective course may be taken at the 1000 level.

Honors

COURSES OFFERED: HONS

Courses designated “Honors” are parts of a special honors program in liberal education called the College Scholars program. They may be taken only by students who have been appointed College Scholars by the dean of the College of Arts and Science. Some College Scholars are appointed before they arrive for their first semester in residence; others may be appointed on the basis of their records in that first semester. All first-year students in the College of Arts and Science may apply to the associate dean for honors programs for admission to the College Scholars program; only first-year students are considered for admission.

Honors seminars offered in the College Scholars program provide an especially interesting and challenging way for College Scholars to complete certain parts of the program for Achieving Excellence in Liberal Education (AXLE).

They are designed to cover topics through the intensive analysis afforded by the seminar setting and format. An honors seminar will satisfy the requirement for a first-year writing seminar. Honors 1810W, 1820W, 1830W, 1840W, 1850W, and 1860W count toward the AXLE requirements identified by the seminars’ titles. Honors 1810W are Humanities and the Creative Arts (HCA) courses; Honors 1820W are Perspectives (P) courses; Honors 1830W are Social and Behavioral Sciences (SBS) courses; Honors 1840W are History and Culture of the United States (US) courses; Honors 1850W are Mathematics and Natural Sciences (MNS) courses; Honors 1860W are International Cultures (INT) courses.

In addition to regular credit hours and grade points, honors seminars carry honors points toward graduation with the designation “Honors in the College of Arts and Science.” College Scholars must earn fifteen honors points to receive that designation (they are not required to earn this designation but may take as many honors seminars as they wish).

They may earn up to thirteen of the required fifteen points in honors seminars: three points each for the first time they take Honors 1810W, 1820W, 1830W, 1840W, 1850W, or 1860W; one point if they take a second seminar in the same area. Single honors points may be earned (a) in departmental honors sections of regular courses, (b) in independent project approved by the associate dean for honors programs, and (c) in a regular course in which an enriched curriculum approved by the Committee on the Honors Program is pursued. Honors points are only earned for courses in which the student earns the grade *B* or better.

Interdisciplinary Studies

Any student who is at least a sophomore and in good academic standing may earn one credit hour per semester or summer for an internship completed under the designation INDS 3880/3884 (summer) exclusively on a Pass/Fail basis. This course may be repeated twice for a maximum of three credit hours. Students are responsible for obtaining their own internship and faculty adviser. The student and faculty adviser work together to plan the academic project associated with the internship. Their agreement must be approved by Associate Dean Daniel Morgan.

COURSES OFFERED: INDS

Jewish Studies

Program of Concentration in Jewish Studies

Honors Program

Minor in Jewish Studies

CHAIR Allison Schachter

DIRECTOR OF UNDERGRADUATE STUDIES: Rebecca Epstein-Levi

PROFESSORS David Price, David J. Wasserstein

ASSOCIATE PROFESSORS Phillip Ackerman-Lieberman, Julia Phillips Cohen, Ari Joskowicz, Shaul Kelner, Adam Meyer, Allison Schachter

ASSISTANT PROFESSORS Rebecca Epstein-Levi, Mazalit Haim

SENIOR LECTURER Judith Klass

COURSES OFFERED: HEBR, JS

Jewish Studies at Vanderbilt offers an interdisciplinary academic program that facilitates the critical study of Jewish history, religion, language, philosophy, politics, culture, society, music, art, and literature across continents and over three millennia. Integral to understanding crucial moments in the formation of Christianity and Islam as well as distinct episodes in the cultures of the modern Middle East, Europe, and America, the program accesses the resources of the entire university to explore Judaism, its evolution and expression from biblical times to the present. This interdisciplinary program reflects Vanderbilt's commitment to advancing the understanding of diverse cultures and traditions. Students of all backgrounds will find in Jewish Studies at Vanderbilt a wide array of material and methodologies, presented by scholars from history, anthropology, sociology, religious studies, philosophy, literature, and history of art. Students may focus on several areas of concentration and tailor the major to their academic and career interests. They also have access to courses offered by the schools of divinity, education, and music; they have access to the Zimmerman Judaica collection as well as the opportunity to study abroad, pursue internships locally or nationally, and do research in archives overseas. The interdisciplinary nature of Jewish Studies offers excellent preparation for graduate studies and provides an outstanding academic foundation for a variety of rewarding career paths. Visit as.vanderbilt.edu/jewishstudies for more details.

Program of Concentration in Jewish Studies

The major in Jewish studies requires a minimum of 30 credit hours.

1. *Introductory course, 3 credit hours.* JS 1002 or 1002W, Introduction to Jewish Studies, JS 1010: Introduction to Judaism, or JS 1040: Introduction to Modern Jewish History.
2. *Language, 6 credit hours.* A year of modern Hebrew (Hebrew 2201–2202, Intermediate Hebrew) or biblical Hebrew (REL 5120, Intermediate Hebrew).* Proficiency at the level of intermediate Hebrew can be demonstrated through testing. If this option is exercised, students will take an additional 6 credit hours of electives toward the major. *In place of biblical or modern Hebrew, interested students may substitute one of the following languages of the Jewish people: Rabbinic Hebrew, Aramaic, Yiddish, Ladino, or Judaeo-Arabic. For languages not presently taught at Vanderbilt, proficiency at the intermediate level may be demonstrated through an exam administered by a designated member of the Jewish Studies faculty. If this option is exercised, students will take an additional 6 credit hours of electives toward the major.
3. *Electives (minimum of 21 credit hours)*—Any of the courses listed below that are not used to fulfill another requirement towards the major may be counted as an elective with the exception of JS 3880, which cannot count toward the major because it must be taken Pass/Fail. In addition to courses drawn from Arts and Science departments and the professional schools, nontraditional course work may also be selected, including archaeology at Tel Megiddo (Israel), service learning, and internships. Study abroad is encouraged and can be fulfilled with CET Jewish Studies in Prague and at the Hebrew University of Jerusalem.

Honors Program

The Honors Program in Jewish Studies offers superior students a more intensive concentration within their major field. Admission to the program requires:

1. A 3.3 cumulative grade point aveage.
2. A 3.3 cumulative grade point average in Jewish Studies.
3. Completion of the junior year.

Requirements for graduation with honors in Jewish Studies are:

1. 6 credit hours in Honors sections (JS 4980–4981), including completion of thesis—these credit hours may count as elective credit toward the major. Honors thesis is to be completed by mid-spring of the senior year.
2. Successful completion of an honors oral examination on the topic of the thesis.

Minor in Jewish Studies

The minor in Jewish studies provides a basic understanding of Jewish history and culture across continents and the past three millennia. The minor requires a minimum of 18 credit hours.

1. *Introductory course, 3 credit hours.* JS 1002 or 1002W, Introduction to Jewish Studies, JS 1010: Introduction to Judaism, or JS 1040: Introduction to Modern Jewish History.
2. *Electives (minimum of 15 credit hours).* Any of the courses listed below that are not used to fulfill another requirement toward the minor may be counted as an elective. Special Topics courses or First-Year Writing Seminar courses dealing with topics related to Jewish studies may be counted with the approval of the program director.

LANGUAGE:

Jewish Studies: 4301, Jewish Language and Paleography.

Hebrew (Modern Hebrew): 1101–1102, Elementary Hebrew; 2201–2202, Intermediate Hebrew; 2301, Advanced Hebrew Grammar; 2302W, Advanced Hebrew Composition; 3851–3852; Independent Study in Modern Hebrew.

ELECTIVES:

Jewish Studies: 1002 or 1002W, Introduction to Jewish Studies; 1010, Introduction to Judaism, or 1040, Introduction to Modern Jewish History; 1111.01, In a Pluralistic Age: Jews, Christians, and Muslims in Spain; 1111.02, Music and Identity in Jewish Traditions; 1111.03, Radical Jews from Karl Marx to Noam Chomsky; 1111.04, Civil Rights and Civil Wrongs: Black–Jewish Relations in the 1950s and 1960s; 1111.05, Gender, Sexuality, and Desire in Jewish Literature; 1111.06, Reading across the Boundaries: Arab and Israeli Literature and Culture; 1111.07, From Einstein to Chomsky: Revolutionary Sciences in Jewish America; 1111.09, Jews and Muslims: A Modern History; 1111.10, Jewish Response to Catastrophe; 1111.12, Jews and Hollywood; 1200, Classical Judaism: Jews in Antiquity; 1111.13, The Cold-War Struggle to Free Soviet Jews; 1210W, The Bible as Literature/The Bible and Literature; 1220, Jews in the Medieval World; 2100, The New Testament in Its Jewish Contexts; 2150, Issues in Rabbinic Literature; 2210W, Hebrew Literature in Translation; 2220, Israeli Culture Through Film; 2230W, American Southern Jews in Life and Literature; 2240W, Black–Jewish Relations in Post-War American Literature and Culture; 2250W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors; 2260, Coming of Age in Jewish Literature and Film; 2260W, Coming of Age in Jewish Literature and Film; 2270, Jewish Storytelling; 2270W, Jewish Storytelling; 2280, Jewish Humor; 2280W, Jewish Humor; 2290W, Imagining the Alien: Jewish Science Fiction; 2300, Modern Jewish Thought; 2320, Freud and Jewish Identity; 2330, Is G–d Guilty? The Problem of Evil in Judaism; 2340, Jewish Philosophy after Auschwitz; 2400, American Jewish Life; 2420W, American Jewish Music; 2450, The Jewish Diaspora; 2500, Modern Israel; 2520, Zionism: Politics, Religion, and Ethnicity; 2540, Power and Diplomacy in the Modern Middle East; 2560, Social Movements in Modern Jewish Life; 2600, Islam and the Jews; 2620, Jews in Egypt; 2640, Jews and Greeks; 2700W, Judaism and Medicine; 3000, Major Themes in Jewish Studies; 3100, The Holocaust; 3210, Reading across Boundaries: Jewish and Non-Jewish Texts; 3400W, Jerusalem; 3830, Contemporary Jewish Issues; 3883, Internship Research; 3890, Special Topics; 3892, Topics in Ancient and Medieval Jewish History; 3894, Topics in Modern Jewish History; 4301, Jewish Language and Paleography; 4960, Senior Seminar; 4970, Senior Project in Jewish Studies.

Anthropology: 3140, Myth, Ritual, Belief: The Anthropology of Religion.

Classics: 2100, History of the Ancient Near East; 2120, Greece and the Near East from Alexander to Theodosius; 2160, History of Roman Empire; 3010, The Ancient Origins of Religious Conflict in the Middle East.

English: 3370, The Bible in Literature; 3664, Jewish American Literature.

European Studies: 2208, Conspiracy Theories and Rumors in European and U.S. History.

French: 4430, Jews and Arab Muslims in France.

German: 1111, Representing the Holocaust; 2443, German Cinema: Vampires, Victims, and Vamps; 2445, Nazi Cinema: The Manipulation of Mass Culture; 3344, Women at the Margins: German Jewish Women Writers; 4574, Who Am I? German Autobiographies.

History: 1111.18, The Life, Science, and Times of Albert Einstein; 1190, A History of Islam; 1200, The Arab Spring; 2155, Muhammad and Early Islam; 2160, Medicine in Islam; 2170, Islam and the Crusades; 2190, Last Empire of Islam; 2280, Europe, 1900–1945; 2290, Europe since 1945; 2300, Twentieth-Century Germany; 2720, World War II; 3150, Cities of Europe and the Middle East; 3190, Religion, Culture, and Commerce: The World Economy in Historical Perspective; 3210, Muslims, Christians, and Jews in Medieval Spain.

History of Art and Architecture: 2260, The Art of Pagans, Christians, and Jews; 2765, Art since 1945.

Music Literature: 2150, Music, Identity, and Diversity; 2310, The Bible and Music.

Philosophy: 2101, Hellenistic and Late Ancient Philosophy; 2102, Medieval Philosophy; 2103, Modern Philosophy; 2109, Twentieth-Century Continental Philosophy; 3005, Jewish Philosophy; 3006, Islamic Philosophy; 3011, Critical Theory; 3607, Philosophy of Religion; 3657, Humanity, Evolution, and God.

Political Science: 2230, Middle East Politics; 2263, Religion and Politics; 3235, Political Islam.

Religion: 6511, Book of Genesis.

Religious Studies: 1111, First-Year Writing Seminar; 1200, Introduction to Judaism; 1208, Themes in the Hebrew Bible; 1500, Introduction to Islam; HUM1610, The Golden Age of Islam; 2210W, Constructions of Jewish Identity in the Modern World; 2220, Jewish Ethics; 2940, Great Books of Literature and Religion; 3225, Sexuality in the Hebrew Bible and the Ancient Near East; 3229, The Holocaust: Its Meanings and Implications; 3270, Jewish Theories of Religion; 3926, Ancient Goddesses; 3930, Women and Religion; 3940, The Nature of Evil; 3941, Religion, Science, and Evolution; 4552, Islam in the Modern World; 4834, Post-Freudian Theories and Religion; 4837, Psychology of Religious Myth and Ritual; 4938, Marriage in the Ancient Near East and the Hebrew Bible; 4939, Religious Autobiography.

Russian: 2434, The Russian Cinema.

Sociology: 3204, Tourism, Culture, and Place; 3222, Sociology of Religion; 3702, Racial and Ethnic Minorities in the United States.

Latin American Studies

Program of Concentration in Latin American Studies

Honors Program

Minor in Latin American Studies

Minor in Brazilian Studies

DIRECTOR Celso T. Castilho

EXECUTIVE DIRECTOR Avery Dickins de Girón

ASSISTANT DIRECTOR Gretchen Selcke

LATIN AMERICAN BIBLIOGRAPHER Paula Covington

COURSES OFFERED: LAS

Designated by the U.S. Department of Education as a National Resource Center for Latin America, Vanderbilt's Center for Latin American Studies draws on departmental strengths and faculty expertise from across campus. Integrating teaching, research, and service, the center maintains substantive collaborations with all of Vanderbilt's colleges and schools. The center has special strengths in Maya studies, Brazilian studies, Andean studies, and the Black Atlantic, as well as unique library collections of Colombiana. Programs of instruction provided by the center promote greater understanding of the region's history, culture, political economy, and social organization and cultivate the ability to think strategically about global issues.

Faculty and courses come from the Departments of Anthropology, Economics, History, History of Art and Architecture, Political Science, Sociology, and Spanish and Portuguese as well as from Vanderbilt's education, engineering, law, management, medical, music, and nursing schools. The center fosters a lively research community on campus by sponsoring colloquia, conferences, films, and a speaker series that brings distinguished scholars, government and business leaders, artists, and social activists to campus.

For undergraduates, the Program in Latin American Studies offers an interdisciplinary undergraduate major and a minor in Latin American studies, as well as a minor in Brazilian studies. The program also offers summer opportunities in Brazil and Guatemala, and facilitates study abroad and service learning opportunities in Latin American countries. An honors program is available.

Program of Concentration in Latin American Studies

The major in Latin American studies consists of 36 credit hours plus a language requirement.

I. Language requirement	*demonstrated proficiency*
II. Core courses	*6 credit hours*
III. Distribution requirements	*12 credit hours*
IV. Area of concentration	*12 credit hours*
V. Electives	*6 credit hours*

Note: No course may be counted twice in calculating the 36 credit hours. Upon approval of the Committee on Individual Programs and the student's adviser, (a) as many as 6 credit hours may be counted as part of both the interdisciplinary major and a second major, or (b) normally, no more than three introductory-level courses will be counted toward the interdisciplinary major.

I. *Language Requirement.* A student must acquire advanced knowledge of one Latin American language (Spanish, Portuguese, Haitian Creole, or an indigenous language) and an intermediate knowledge in another Latin American language. The requirement to acquire advanced knowledge of a Latin American language may be satisfied by completing Spanish 3303, or any course with a higher number taught in Spanish, or any course with a higher number taught in Portuguese. The requirement to acquire intermediate knowledge of another Latin American language may be satisfied by successfully completing Spanish 2203, Portuguese 2203, Haitian Creole 2202, or K'iche' 2202. Individual standardized testing may also be used to demonstrate knowledge.

II. *Core Courses* (6 credit hours)

LAS 2101

LAS 4901

III. *Distribution Requirements* (12 credit hours). Two relevant classes in two of the following three areas not chosen as the major area of concentration.

A. History
B. Language, Literature, and Art History (Departments of Spanish & Portuguese and History of Art and Architecture)
C. Social Sciences (Departments of Anthropology, Economics, Political Science, Sociology)

IV. *Area of Concentration* (12 credit hours from one of the following areas; special topics and independent study courses must be approved for sufficient LAS content by major adviser):

A. History.

HISTORY: 1353, Atlantic History in the Digital Age; 1370, Colonial Latin America; 1378, Social Movements in Latin America, 1780–1912; 1379W, The Inquisition in the New World; 1380, Modern Latin America; 1383, Slave Resistance in the Americas; 1384, Law, Gender, and Slave Emancipation in Latin America; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2457, Drug Trafficking and Society in Latin America; 2470, Modern Mexico; 2480, Central America; 2490, Brazilian Civilization; 2510, Reform and Revolution in Latin America; 2530, African Religions in the Americas; 2535, Latin America and the United States; 2540, Race and Nation in Latin America; 2570, Caribbean History, 1492–1983; 3100, Pirates of the Caribbean; 3280, Popular Cultures in Modern Latin America; 3850, Independent Study; 3890, Selected Topics in History.

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future.

B. Language, Literature, History of Art.

AFRICAN AMERICAN AND DIASPORA STUDIES: 1706, Capoeira: Afro-Brazilian Race, Culture, and Expression; 2148, Blacks in Latin America and the Caribbean; 2356, African Spirits in Exile: Diaspora Religions in the Americas; 3248,

Atlantic African Slave Trade.

CREOLE: 1101, Elementary Creole I; 1102, Elementary Creole II; 2201, Intermediate Creole I; 2202, Intermediate Creole II.

HISTORY OF ART AND ARCHITECTURE: 3718W, Twentieth-Century Mexican Art: Painting, Cinema, Literature; 3850, Independent Research; 4960, Advanced Seminar.

K'ICHE': 1101, Elementary K'iche' I; 1102, Elementary K'iche' II; 2201, Intermediate K'iche' I; 2202, Intermediate K'iche' II.

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future; 2301, Music of Protest and Social Change in Latin America; 4550, Gender, Sexuality, and Family in Latin America.

PORTUGUESE: 1103, Intensive Elementary Portuguese; 2203, Intermediate Portuguese; 3301, Portuguese Composition and Conversation; 3302, Brazilian Pop Culture; 3303, Introduction to Luso-Brazilian Literature; 3850, Independent Study; 3892, Special Topics in Portuguese Language, Literature, or Civilization; 4350, Brazilian Culture through Native Material; 4420, Brazilian Literature through the Nineteenth Century; 4425, Modern Brazilian Literature.

SPANISH: 2201, Intermediate Spanish; 2203, Intermediate Spanish; 2204, Intensive Intermediate Spanish; 2995, Contemporary Latin American Prose Fiction in English Translation; 3301W, Intermediate Spanish Writing; 3302, Spanish For Oral Communication Through Cultural Topics; 3303, Introduction to Spanish and Spanish American Literature; 3320, Introduction to Hispanic Cultural Studies; 3330, Cultural Studies in the Andes; 3340, Advanced Conversation; 3345, Spanish for Business and Economics; 3350, Spanish for the Legal Profession; 3355, Advanced Conversation through Cultural Issues in Film; 3360, Spanish Civilization; 3375, Film and Culture in Latin America; 3830, Spanish for the Medical Profession; 3835, Latino Immigration Experience; 3850, Independent Study; 3891, Special Topics in Hispanic Culture; 3892, Special Topics in Spanish Language and Linguistics; 3893, Special Topics in Hispanic Literature; 4310, Translation and Interpretation; 4325, Dialectology; 4340, History of the Spanish Language; 4400, The Origins of Spanish Literature; 4405, Literature of the Spanish Golden Age; 4415, Spanish Literature from 1900 to the Present; 4420, Spanish American Literature from the Conquest to 1900; 4425, Spanish American Literature from 1900 to the Present; 4440, Development of the Short Story; 4445, Development of the Novel; 4450, The Contemporary Novel; 4455, Development of Drama; 4465, The Theory and Practice of Drama; 4470, Development of Lyric Poetry; 4550, The Theory and Practice of Literary Translation; 4620, Love and Honor in Medieval and Golden Age Literature; 4640, *Don Quixote*; 4720, Literary Genres and National Identities in Latin America; 4725, Jungle Narratives in Latin America; 4730, Modern Latin American Poetry; 4741, Spanish-American Literature of the Post-Boom Era; 4750, Afro-Hispanic Literature; 4755, Latina and Latin American Women Writers; 4760, Literature and Medicine; 4810, Images of the City.

C. Social and Natural

ANTHROPOLOGY: 2105, Race in the Americas; 2106, Culture and Power in Latin America; 2108, Indigenous Peoples of Lowland South America; 2110, Gender and Cultural Politics; 2113, Food, Identity, and Culture; 2227, Food in the Ancient World; 2230, South America Archaeology; 2231, Ancient Andean Civilizations; 2242, The Archaeology of Ancient Maya Civilization; 2603, Comparative Writing Systems; 3121, Global Wealth and Poverty; 3122, The Anthropology of Globalization; 3130, Andean Culture and Society; 3133, Political Anthropology; 3134, Human Rights of Indigenous Peoples; 3140, Myth, Ritual, Belief: The Anthropology of Religion; 3141, Anthropology of Healing; 3143, Medical Anthropology; 3161, Colonial Encounters in the Americas; 3200, Ancient Cities; 3202, The Collapse of Civilizations; 3240, Ancient Mesoamerican Civilizations; 3241, The Aztecs; 3242, The Archaeology of the Ancient Maya Civilization; 3243, Classic Maya Religion and Politics; 3250, The Inca Empire; 3850– 3851, Independent Research; 3622W, Classic Maya Language and Hieroglyphs; 3867, Digital Archaeology: Analysis and Curation of Material Culture; 3890, Special Topics; 4156, Racial Experience and Politics; 4373, Health and Disease in Ancient Populations.

ECONOMICS: 2220, Latin American Development; 3600, International Trade; 3650, Development Economics; 3851–3852, Independent Study in Economics; 4520W, Seminar on Globalization.

Note: Students who successfully complete an Economics course on this list numbered 4520W or higher may also receive Area of Concentration credit for successfully completing either Economics 3010 or 3020.

MEDICINE, HEALTH, AND SOCIETY: 2410, HIV/AIDS in the Global Community; 2420, Economic Demography and Global Health; 2610, Global Health Crises; 3210, Health, Development, and Culture in Guatemala; 3212, Health, Development, and Culture in Guatemala; 3890, Social Medicine in Latin America.

POLITICAL SCIENCE: 2213, Democratization and Political Development; 2219, Politics of Mexico; 2225, International Political Economy; 2236, The Politics of Global Inequality; 2251, The Politics of U.S. and Global Immigration; 3217, Latin American Politics; 3218, Public Opinion and Democracy in Latin America; 3219, La política de América Latina; 3228, International Politics of Latin America; 3897, Selected Topics; 3851–3852, Independent Research.

SOCIOLOGY: 3232, Contemporary Mexican Society; 3321, Population and Society; 3322, Immigration in America; 3851, Independent Research and Writing.

V. *Electives* (6 credit hours). Any two classes listed above (or others approved by the major adviser).

Honors Program

An honors program is available, acceptance into which must be approved by the director of undergraduate studies. Students must have a minimum 3.3 cumulative GPA and a 3.3 GPA in courses that count toward the Latin American studies major to be accepted into the program. The Honors Program requires: completion of 6 credit hours in LAS 3851 and 3852; the writing of an honors thesis; and passing an oral honors examination. Interested students should consult their academic adviser during their junior year.

Minor in Latin American Studies

Students must complete 15 credit hours of approved courses with Latin American content, including Latin American Studies 2101. In addition, students must demonstrate intermediate knowledge of one Latin American language by successfully completing Spanish 2203, Portuguese 2203, Haitian Creole 2202 or K’iche’ 2202. Courses taken to satisfy the language requirement may not be counted toward the 15 credit hours of core courses. Individual standardized testing may also be used to demonstrate knowledge.

Course selection must be approved by the undergraduate adviser of the Program in Latin American Studies.

Minor in Brazilian Studies

The Program in Latin American Studies also offers a minor in Brazilian studies. Students must complete 15 credit hours of approved courses with Brazilian content including LAS 2102 and Portuguese 2203. In addition, students must complete three additional courses from the Areas of Study listed below: one course in Area I, one course in Area II, and one course in Area III. Proficiency at the level of intermediate Portuguese can be demonstrated through testing. If this option is exercised, students must take 3 credit hours of course work approved by the director of undergraduate studies in lieu of the 3 credit hours of PORT 2203.

Course selection must be approved by the director of undergraduate studies for Latin American Studies. Other elective courses, including special topics courses, may be counted toward the minor with the approval of the director of undergraduate studies.

Requirements for completion of the minor include at least 15 credit hours as follows:

1. 3 credit hours of LAS 2102: Brazil: Past, Present, and Future
2. 3 credit hours of PORT 2203: Intermediate Portuguese (PORT 1103 is a prerequisite)
3. 3 credit hours from Area I: Portuguese Language and Literature
4. 3 credit hours from Area II: Brazilian Society, History, and Cultures
5. 3 credit hours from Area III: Brazil in Regional and Global Context

Areas of Study

Area of Study I: Portuguese Language and Literature

PORTUGUESE: 3301, Portuguese Composition and Conversation; 3303, Introduction to Luso-Brazilian Literature; 4420, Brazilian Literature through the Nineteenth Century; 4425, Modern Brazilian Literature.

Area of Study II: Brazilian Society, History, and Cultures

ANTHROPOLOGY: 2108, Indigenous Peoples of Lowland South America.

HISTORY: 2490, Brazilian Civilization.

PORTUGUESE: 3302, Brazilian Pop Culture; 4350, Brazilian Culture through Native Material; 3891, Special Topics in Portuguese and Brazilian Literature or Civilization in English Translation.

Area of Study III: Brazil in Regional and Global Context

AFRICAN AMERICAN AND DIASPORA STUDIES: 2148, Blacks in Latin America and the Caribbean; 3248, Atlantic African Slave Trade; 1706, Capoeira: Afro-Brazilian Race, Culture, and Expression.

ANTHROPOLOGY: 2106, Culture and Power in Latin America.

ECONOMICS: 2220, Latin American Development.

HISTORY: 1370, Colonial Latin America; 1380, Modern Latin America; 1383, Slave Resistance in the Americas; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2510, Reform and Revolution in Latin America; 2540, Race and Nation in Latin America.

POLITICAL SCIENCE: 3217, Latin American Politics; 3228, International Politics of Latin America.

SOCIOLOGY: 3231, Contemporary Latin America.

Latino and Latina Studies

DIRECTOR Celso T. Castilho

ASSISTANT DIRECTOR Gretchen Selcke

COURSES OFFERED: LATS

Latino and Latina Studies focuses on cultural production and political and socioeconomic experiences of people inculcated with the US experience, self-identifying as Latinx and communicating primarily in English and sometimes in Spanish. The LATS major and minor will examine this enduring and dynamic population that crosses and re-crosses borders constructed by geography, linguistics, class, race, and gender. This program of study is designed to accommodate a range of voices and multiple manifestations of Latinx identity and cultural expression in historical and contemporary contexts to fill in this vital but often overlooked component of our national identity and discourse.

Students pursuing a LATS major or minor are expected to obtain language competence in Spanish before completing the program, though they do not need to meet this requirement when declaring the major or minor. Students may satisfy this requirement by completing SPAN 3303, or any other course with a higher number taught in Spanish.

Program of Concentration in Latino and Latina Studies

The interdisciplinary major in Latino and Latina studies consists of thirty-six (36) credit hours. The specific requirements are as follows:

1. LATS 2201, Introduction to Latino and Latina Studies (3 credit hours)

2. SPAN 3303, Introduction to Spanish and Spanish American Literature (3 credit hours)

SPAN 3303 requires up to 19 prerequisite credit hours of Spanish language instruction through SPAN 3302, depending on departmental placement.

3. ENGL 3658, Latino-American Literature (3 credit hours)

4. LATS 4961, Latino and Latina Studies Capstone, which is usually taken in the senior year (3 credit hours)

5. Eight elective courses (24 credit hours) with at least two courses from Group A (Latino and Latina Culture) and two courses from Group B (Historical Context), that have not already been applied to satisfy above requirements.

Minor in Latino and Latina Studies

Students pursuing the interdisciplinary minor must complete eighteen (18) credit hours. The specific requirements areas follows:

1. LATS 2201, Introduction to Latino and Latina Studies (3 credit hours)

2. SPAN 3303 or ENGL 3658 (3 credit hours)

If both courses are taken, only one may be applied as elective credit.

3. LATS 4961, Latino and Latina Studies Capstone (3 credit hours)

4. Three other courses (9 credit hours), with at least one course from Group A (Latino and Latina Culture) and one course from Group B (Historical Context), that have not already been applied to satisfy above requirements.

Approved List of Courses

Category A: Latino and Latina Culture

AFRICAN AMERICAN AND DIASPORA STUDIES: 1706, Capoeira: Afro-Brazilian Race, Culture, and Expression; 2148, Blacks in Latin America and the Caribbean.

ENGLISH: 1111-19 FYWS, Growing Up Latino and Latina; 1210-08 Prose Fiction, “Estamos Aquí:” Belonging in Contemporary Latinx Fiction; 1220-01 Drama, Forms and Techniques: Latinx Plays and Performance; 3658, Latino-American Literature.

HISTORY: 2725, Race, Power, and Modernity; 2540, Race and Nation in Latin America; 3280, Popular Cultures in Modern Latin America.

HUMAN AND ORGANIZATIONAL DEVELOPMENT: 3221, Health Service Delivery to Diverse Populations.

LATINO AND LATINA STUDIES: 3831, Latino and Latina Business and Entrepreneurship; 3880 and 3881, Latino and Latina Studies Internship Training and Internship Readings and Research; 3850, Independent Study.

LATIN AMERICAN STUIDES: 2601, Latin America, Latinos, and the United States.

SOCIOLOGY: 3702, Racial and Ethnic Minorities in the United States; 3322, Immigration in America.

SPANISH: 2995, Contemporary Latin American Prose Fiction in English Translation; 3302, Spanish for Oral Communication Through Cultural Topics;3303, Introduction to Spanish and Spanish American Literature; 3345, Spanish for Business and Economics; 3375, Film and Culture in Latin America;3830, Spanish for the Medical Profession; 3835, Latino Immigration Experience; 3893-01, Special Topics in Hispanic Literature—Latinx US Literature;3893-02, Special Topics im Hispanic Literature—Contemporary Mexican Literature and Culture; 4350, Communicating Across Cultures; 4450, TheContemporary Novel; 4720, Literary Genres and National Identities in Latin America; 4725, Jungle Narratives in Latin America; 4730, Modern Latin American Poetry; 4750, Afro-Hispanic Literature; 4755, Latina and Latin American Women Writers; 4765, Latina American Fiestas: Mexico, TheAndes, and the Caribbean; 4810, Images of the City.

Category B: Historical Context

AFRICAN AMERICAN AND DIASPORA STUDIES: 2356, African Spirits in Exile: Diaspora Religions in the Americas; 3248, Atlantic African Slave Trade; 3178, Colonialism and After.

ANTHROPOLOGY: 1111 FYWS, Conquest of Mexico; 2106, Culture and Power in Latin America; 2108, Indigenous Peoples of Lowland South America; 2214, Art and Architecture in the Ancient Americas; 2220/2220W, Human Landscapes; 2230, South American Archaeology; 2231, Ancient Andean Civilizations; 2242/2242W The Archaeology of the Ancient Maya Civilization; 2160/2160, Creating Community; 2371, Reading the Bones: Bioarchaeology and Forensic Studies in the Peruvian Andes; 3130, Andean Culture and Society; 3161, Colonial Encounters in the Americas; 3162, Material Culture of New World Slavery, 3202, The Collapse of Civilizations; 3240, Ancient Mesoamerican Civilizations; 3241, The Aztecs; 3243/3243W, Ancient Maya Gods and Rulers; 3250, The Inca Empire;

3622/3622W, Classic Maya Language and Hieroglyphs.

ENGLISH: 3654, African American Literature; 3674, Caribbean Literature.

HISTORY: 1111 FYWS, Destruction of the Indies; 1370, Colonial Latin America; 1378, Social Movements in Latin America; 1379W, The Inquisition in the New World: Law, Deviance, and Heresy in Colonial Mexico; 1380, Modern Latin America; 1383, Slave Resistance in the Americas; 1385W, Disease and Disorder in the Atlantic World; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2457, Drug Trafficking and Society in Latin America; 2470, Revolutionary Mexico; 2480, Central America; 2490, Brazilian Civilization; 2510, Reform and Revolution in Latin America; 2530, African Religions in the Americas; 2535, Latin America and the United States; 2542, Cuba and the United States; 2544, Panama: Global Crossroads; 2570, Caribbean History, 1492–1983; 2570, Immigration, the United States, and the World; 2580, American Indian History before 1850; 2590, American Indian History since 1850; 2845, Race, Gender, and Slave Emancipation.

LATIN AMERICAN STUDIES: 2101, Introduction to Latin America; 2301, Music of Protest and Social Change in Latin America; 3891, Special Topics in Latin American Studies; 4550, Gender, Sexuality, and Family in Latin America.

MUSIC LITERATURE: 2110, Music in Latin America and the Caribbean.

PORTUGUESE: 2900, Brazilian Civilization through English Language Material.

SOCIOLOGY: 3231, Contemporary Latin America; 3602, Change and Social Movements in the Sixties.

SPANISH: 3320, Introduction to Hispanic Cultural Studies; 3330, Cultural Studies in the Andes; 3365, Film and Recent Cultural Trends in Spain;3892, Special Topics in Spanish Language and Linguistics; 4450, The Contemporary Novel; 4465, The Theory and Practice of Drama; 4740, Spanish-American Literature of the Boom Era; 4741, Spanish-American Literature of the Post-Boom Era; 4760, Literature and Medicine.

Category C: Critical Perspectives
AFRICAN AMERICAN AND DIASPORA STUDIES: 1010, Introduction to African American and Diaspora Studies.

ANTHROPOLOGY: 2105, Race in the Americas; 3134, Human Rights of Indigenous Peoples.

ECONOMICS: 2100, Labor Economics; 2220 Latin American Development.

ENGLISH: 3742, Feminist Theory.

PHILOSOPHY: 3617, Philosophy of Language.

POLITICAL SCIENCE: 2208, Law, Politics, and Justice; 2219, Politics of Mexico; 2251, The Politics of U.S. and Global Immigration; 3217, Latin American Politics; 3228, International Politics of Latin America; 3264W, Global Feminisms.

SOCIOLOGY: 3312, Environment and Development; 3232, Contemporary Mexican Society; 3314, Environmental Inequality and Justice; 3612, Class, Status, and Power; 3701, Racial Domination, Racial Progress; 3704, Race, Gender, and Sport.

WOMEN’S AND GENDER STUDIES: 1150/1150W, Sex and Gender in Everyday Life; 3201, Women and Gender in

Transnational Context.

Materials Science and Engineering

Materials Science and Engineering Minor

DIRECTOR OF UNDERGRADUATE STUDIES Bridget R. Rogers

DIRECTOR OF GRADUATE STUDIES Joshua D. Caldwell

Affiliated Faculty

PROFESSORS Joshua D. Caldwell (Mechanical Engineering) David E. Cliffel (Chemistry), Craig L. Duvall (Biomedical Engineering), Philippe M. Fauchet (Electrical and Computer Engineering), Daniel M. Fleetwood (Electrical and Computer Engineering), Todd D. Giorgio (Biomedical Engineering), Scott A. Guelcher (Chemical and Biomolecular Engineering), Richard F. Haglund, Jr. (Physics), G. Kane Jennings (Chemical and Biomolecular Engineering), Weng P. Kang (Electrical and Computer Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), Deyu Li (Mechanical Engineering), Sandra J. Rosenthal (Chemistry), Florence Sanchez (Civil Engineering), Jason G. Valentine (Mechanical Engineering), Sharon M. Weiss (Electrical and Computer Engineering)

ASSOCIATE PROFESSORS Leon Bellan (Mechanical Engineering), Janet E. MacDonald (Chemistry), Bridget R. Rogers (Chemical and Biomolecular Engineering), Greg Walker (Mechanical Engineering)

RESEARCH ASSOCIATE PROFESSOR Enxia Zhang (Electrical and Computer Engineering)

ASSISTANT PROFESSORS Piran Kidambi (Chemical and Biomolecular Engineering), Carlos Silvera Batista (Chemical and Biomolecular Engineering)

COURSES OFFERED: MSE

Materials have been key to the solutions to many societal problems. Many of the barriers to widespread incorporation of alternate and renewable energy, from higher-capacity, more robust, less expensive batteries for energy storage, to high efficiency/low cost solar devices, involve the need for new materials. Materials will play an ever-increasing role in health care. New medical devices, drug delivery systems, and synthetic biological tissue are just a few of the health-related applications in need of new materials for their success. In addition, materials challenges are front and center in the ever-evolving areas of electronic devices. Engineers and scientists with knowledge of materials science and engineering concepts are needed to address these and many more materials challenges.

Materials science and engineering is an interdisciplinary program with affiliated faculty from all engineering disciplines, as well as faculty from chemistry, and physics. Two undergraduate options involving materials science and engineering are available. Students pursuing a B.S. in engineering science may choose a program concentration in materials science and engineering. This option requires the student to take MSE 1500, 1500L, and 2500, and other materials science and engineering elective courses to complete their 24 hours of engineering program electives. Students pursuing a B.E. in an engineering discipline can earn a minor in materials science and engineering.

Materials Science and Engineering Minor

The minor in materials science and engineering provides the student with an understanding of engineering materials. It complements and adds to the student’s major in one of the engineering disciplines, exposing the student to an interdisciplinary approach to problem solving. The minor program in materials science and engineering requires 16 hours of program courses, of which 7 hours are devoted to MSE 1500, 1500L and MSE 2500.

No more than 10 hours below the 2500 level may be applied to the minor.

Program Requirements

MSE 1500, 1500L	Materials Science I and Laboratory
MSE 2500	Materials Science II

The remaining 9 hours can be chosen from the following list of courses. Please contact the MSE Director of Undergraduate Studies with requests to accept courses not on this list for elective credit.

MSE 3860	Undergraduate Research
MSE 3889-3890	Special Topics
BME 2100	Biomechanics
BME 3500	Biomedical Materials: Structure, Property, and Applications
BME 4200	Principles and Applications BioMicroElectro Mechanical Systems (BioMEMS)
BME 4500	Nanobiotechnology
CHBE 4840	Synthesis and Applications of 2D Nanomaterials
CHBE 4850	Semiconductor Materials Processing
CHBE 4860	Molecular Aspects of Chemical Engineering
CHBE 4870	Polymer Science and Engineering
CHBE 4880	Corrosion Science and Engineering
CE 2205	Mechanics of Materials
CE 3205	Structural Design
CE 4200	Advanced Structural Steel Design
CE 4210	Advanced Reinforced Concrete Design
CE 4211	Mechanics of Composite Materials
ECE 4283	Principles and Models of Semiconductor Devices
ECE 4284	Integrated Circuit Technology and Fabrication
ME 3202	Machine Analysis and Design
ME 4251	Modern Manufacturing Processes
ME 4275	Finite Element Analysis
CHEM 3010	Inorganic Chemistry
CHEM 3300	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 3630	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
PHYS 2250W	Introduction to Quantum Physics and Applications I
PHYS 2290	Electricity, Magnetism, and Electrodynamics
PHYS 3640	Physics of Condensed Matter

Mathematics

Program of Concentration in Mathematics

Honors Program

Minor in Mathematics

Licensure for Teaching

Calculus

INTERIM HEAD David Wright

VICE CHAIR Mark Ellingham

DIRECTOR OF UNDERGRADUATE STUDIES John Rafter

DIRECTOR OF GRADUATE STUDIES Alexander Powell

PROFESSORS EMERITI John Ahner, Philip S. Crooke, Emmanuele DiBenedetto, Richard R. Goldberg, Matthew Gould, Robert L. Hemminger, C. Bruce Hughes, Ettore F. Infante, Gennadi Kasparov, Richard J. Larsen, Ralph N. McKenzie, Michael D. Plummer, John G. Ratcliffe, Eric Schechter, Daoxing Xia

PROFESSORS, Akram Aldroubi, Dietmar Bisch, , Paul H. Edelman, Mark N. Ellingham, Douglas P. Hardin, , Michael L. Mihalik, Mike Neamtu, Alexander Olshanskiy, Denis Osin, Alexander Powell, , Edward B. Saff, Mark V. Sapir, Larry L. Schumaker, Gieri Simonett, Constantine Tsinakis, Glenn F. Webb, Dechao Zheng

RESEARCH PROFESSORS Philip S. Crooke, Emmanuele DiBenedetto, Ralph N. McKenzie Stephen G. Simpson

ASSOCIATE PROFESSORS Jesse Peterson, Jared Speck, Ioana Suvaina, Steven T. Tschantz

RESEARCH ASSOCIATE PROFESSOR Rares Rasdeaconu

ASSISTANT PROFESSORS Anna Marie Bohmann, , Marcelo Disconzi, Spencer Dowdall, , William Holmes, Larry Rolen

PRINCIPAL SENIOR LECTURERS Derek Bruff, B Linda Hutchison, John Rafter, Lori Rafter Jakayla Robbins

SENIOR LECTURER EMERITA Jo Ann W. Staples

SENIOR LECTURERS Henry Chan, José Gil-Férez, Blane Hollingsworth, Alice Mark

POSTDOCTORAL SCHOLARS Leonardo Abbrescia, Simon André, Dylan Domel-White, Hengrong Du, Mitchell Faulk, Kevin Grace, James Hateley, Jocelyne Ishak, Alexander Margolis, ,Rocío Díaz Martín, Ivan Medri, Ian Runnels, Sam Shepherd, Oleksandr Vlasiuk, Ian Wagner, Yi Wang, Xinyue Zhao

COURSES OFFERED: MATH

The Department of Mathematics offers an undergraduate major with a high degree of flexibility. A solid background in mathematics provides an excellent foundation for any quantitative discipline as well as many professions—many students go on to professional studies in law, medicine, or business.

Program of Concentration in Mathematics

Three tracks are available.

Program I (Standard Track) is intended for most mathematics majors in the College of Arts and Science, Blair School of Music, and Peabody College.

Program II (Applied Track) is intended for students in the School of Engineering who elect a second major in mathematics but is also available for other students.

Program III (Honors Track) is intended for highly qualified students who either are preparing for graduate studies in mathematics or plan to graduate with departmental honors. Students who complete this program and, in addition, complete a senior thesis will graduate with departmental honors.

Requirements for the three tracks are summarized below.

Program I (Standard Track)

At least 32 credit hours in mathematics including at least 15 credit hours taken at Vanderbilt, as follows.

1. A calculus sequence: 1300–1301-2300, 1300-1301-2310, or 1300–1301–2500–2501.
2. Linear algebra and differential equations: 2600 or 2500–2501, and 2610.
3. At least 15 additional credit hours from 2800 or above.
4. The remainder of the credit hours must be chosen from 2800 or above.

Program II (Applied Track)

At least 29 credit hours in mathematics including at least 15 credit hours taken at Vanderbilt and 6 credit hours outside the department, as follows.

1. A calculus sequence as in Program I.
2. Linear algebra and differential equations—one of the following:
    a. one of 2410, 2600, or 2500–2501, and one of 2420 or 2610; or
    b. 2400 and either 2600 or 2500–2501.
3. At least 12 additional credit hours from 2800 or above, excluding 3000.
4. The remainder of the credit hours in mathematics must be chosen from 2800 or above.
5. At least 6 credit hours of advanced, mathematically based science or engineering courses approved by the director of undergraduate studies. This requirement is automatically fulfilled by students who complete a physics major or a major in the School of Engineering.

Program III (Honors Track)

At least 38 credit hours in mathematics including at least 15 credit hours taken at Vanderbilt, as follows.

1. A calculus sequence as in Program I.
2. Linear algebra and differential equations as in Program I.
3. At least 21 additional credit hours of advanced course work,
    a. including four courses taken from the following three categories, at least one from each category:
        1. Algebra: 3300, 4300, 4301.
        2. Analysis: 3100, 3110, 6100, 6101.
        3. Topology and Geometry: 3200, 3230, 4200, 4201, 4220, 6210.
        4. The remainder of the 21 credit hours must be chosen from 2800 or above, excluding 4999.
4. The remainder of the credit hours must be chosen from 2800 or above.

Students who complete Program III and, in addition, fulfill the Honors requirements listed below, will graduate with departmental honors.

Students planning to teach in secondary school should contact the director of secondary education programs in the Department of Teaching and Learning at Peabody College for course recommendations.

Honors Program

The Honors Program in Mathematics is designed to afford superior students the opportunity to pursue more intensive work within their major field. The program requires:

1. Completion of all the requirements of Program III (Honors Track).
2. Graduate with a minimum grade point average of 3.6 in courses that count toward the mathematics
3. Completion of a senior thesis, typically in the second semester of the senior year. With approval of the director of undergraduate studies, the thesis may be based on research initiated or completed at another academic institution, such as during a summer REU
4. Oral examination on the senior thesis. A committee of at least three faculty members—at least two from the Department of Mathematics, one being the thesis adviser—shall evaluate the thesis and the oral examination. Exceptional achievement on the thesis will earn highest

Interested students may apply to the director of undergraduate studies for admission to the Honors Program in their junior year or the first semester of their senior year. Applicants must meet college requirements for entry to the

Honors Program and must maintain a minimum grade point average of 3.6 in courses that count toward the mathematics major.

The application includes a one- to two-page proposal of the planned thesis and the signature of the faculty member who will be the thesis adviser.

The thesis must be submitted no later than two weeks before the end of classes in the semester of graduation. The oral examination will take place by the last day of classes in the semester of graduation. Highest honors will be awarded for a thesis that contains original high-quality research results in combination with an oral defense at the highest quality level.

Students may sign up for Math 4999 during one semester of their senior year. Math 4999 will not count toward the 21 credit hours requirement in Program III.

Please consult the director of undergraduate studies for details.

Minor in Mathematics

The minor in mathematics requires at least 15 credit hours in mathematics, including:

1. Completion of a calculus sequence: 2300, 2310, or 2500–2501.
2. Linear algebra and differential equations: as in the Program II major.
3. At least 6 credit hours not used to satisfy item 2 from 2800 or above.

Completion of a single-variable calculus sequence (1300–1301) is a prerequisite for the minor, but does not count toward the credit hours of the minor.

Licensure for Teaching

Candidates for teacher licensure at the secondary level in mathematics should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Calculus

Several calculus sequences are available: 1100; 1200–1201; 1300–1301–2300; 1300-1301-2310.

The courses in these sequences cover similar material, but at different rates, and therefore overlap in content and credit. Students should not switch from one to another without approval of the department. Such switching may result in loss of credit. Students intending to take mathematics classes beyond one year of calculus are advised to enroll in the 1300–1301–2300 sequence or in the 1300-1301-2310 sequence.

First-year students with test scores of 5 on the Calculus BC advanced placement examination, thereby earning AP credit for 1300–1301, may choose to enroll in the 2500–2501 sequence. The combination of 2500–2501 is a blend of multivariable calculus and linear algebra, with an emphasis on rigorous proofs.

Mechanical Engineering

CHAIR Nilanjan Sarkar

ASSOCIATE CHAIR Haoxiang Luo

DIRECTOR OF UNDERGRADUATE STUDIES Kenneth D. Frampton

DIRECTOR OF GRADUATE STUDIES Jason G. Valentine

DIRECTOR OF GRADUATE RECRUITING Leon M. Bellan

PROFESSORS EMERITI Thomas A. Cruse, Donald L. Kinser, Robert L. Lott Jr., Carol A. Rubin, Taylor G. Wang, John W. Williamson

PROFESSORS Douglas E. Adams, Eric J. Barth, Joshua D. Caldwell, Michael Goldfarb, S. Duke Herrell, Deyu Li, Haoxiang Luo, Sankaran Mahadevan, Caglar Oskay, Robert W. Pitz, Nilanjan Sarkar, Nabil Simaan, Alvin M. Strauss, Jason G. Valentine, Robert J. Webster III

PROFESSORS OF THE PRACTICE Amrutur V. Anilkumar, Kenneth D. Frampton, Thomas J. Withrow

ADJOINT PROFESSOR Dong Cha, Simone De Liberato, Pietro Vadastri, Peiyong Wang

ASSOCIATE PROFESSORS Leon M. Bellan, Ravindra Duddu, Greg Walker, Karl E. Zelik

RESEARCH ASSOCIATE PROFESSORS Kevin Galloway

ASSISTANT PROFESSORS David J. Braun, Ziaogung Dong, Piran Kidambi, Justus C. Ndukaife, Jie Ying Wu

ASSISTANT PROFESSORS OF THE PRACTICE Jason Mitchell, Ranjana Sahai

RESEARCH ASSISTANT PROFESSOR Richard J. Hendrick

ADJOINT ASSISTANT PROFESSOR Thomas Folland, Carl A. Hall, Stephanie Law, Derek Wolf

COURSES OFFERED: ME

The vitality of our nation depends upon innovation in the design of new machines, devices to satisfy society’s needs, engines to produce power efficiently, equipment to condition the environment of our buildings, and the systems to use and control these engineered products. Mechanical engineers are involved in solving problems by originating design concepts, developing products and processes of manufacture, and designing hardware and the systems needed to satisfy society’s demands. Mechanical engineers work in virtually all industries.

The study of mechanical engineering requires a basic understanding of mathematics, chemistry, physics, and the engineering sciences. Mechanical engineering education emphasizes solid mechanics; dynamics of machines; aerodynamics; propulsion devices; material behavior; power producing and environmental conditioning processes; control of dynamics of machines; energy conversion; and the synthesis, development, evaluation, and optimization of designs of devices and systems.

Degree Programs. The Department of Mechanical Engineering offers the B.E., M.Eng., M.S., and Ph.D. in mechanical engineering.

The curriculum in mechanical engineering leading to a bachelor of engineering provides a broad-based engineering education with opportunities for the student to elect courses in areas of study related to any industry and, with careful planning of the elective courses, to achieve some specialization. The mechanical engineering program prepares an individual to become a practicing engineer who can participate fully in the engineering activities of design, building, operation, production, maintenance, safety, marketing, sales, research, and administration.

Undergraduate Honors Program. See the Special Programs chapter for general requirements of the professional Honors Program in mechanical engineering. Honors candidates choose their technical elective courses with the advice and consent of an honors adviser. Each candidate is expected to take 3 hours of ME 3860 in a single semester and at least 6 hours of graduate courses numbered 5000 or higher, including one course numbered 8000 or higher. A formal written honors thesis on the candidate's research must be approved by the honors adviser and the department chair. Honors candidates shall meet all Engineering School requirements in the nontechnical areas. The diploma designation is Honors in Mechanical Engineering.

Facilities. Undergraduate instructional laboratories are equipped for studies in heat and power, refrigeration and air-conditioning, fluid flow, heat transfer, design, controls, robotics, instrumentation, and biomechanics. Specialized facilities for robotic surgery, rehabilitation robotics, energy storage, medical microfluidics, thermal transport, combustion characterization, and photonics are used for both faculty-led research and instruction. The department also maintains various maker spaces including machine shops and design studios for fabrication of experimental equipment and for instruction.

Curriculum Requirements

The B.E. in mechanical engineering requires a minimum of 126 hours, distributed as follows:

1. Mathematics (17 hours). Required courses: MATH 1300, 1301, 2300, 2420. Required elective: MATH courses numbered 2410 and above, except MATH 3000.
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; MSE 1500, 1500L (or CHEM 1602, 1602L); PHYS 1601, 1601L, 1602, 1602L.
3. Engineering Science (25 hours). Required courses: ES 1401, 1402, 1403; CE 2200, 2205; CS 1100 or 1101 or 1103 or 1104; ECE 2112; ME 2190, 2220, 3224; MSE 2205.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Open electives (6 hours).
6. ME core (26 hours). ME 2160, 2171, 3202, 3204, 3234, 3248, 4213, 4950, 4951, and 4959
7. Technical electives (9 hours). To be selected from the following approved courses. Courses selected from the College of Arts and Science must be designated a Mathematics and Natural Sciences (MNS) course in the AXLE curriculum.
    a. School of Engineering courses except CS 1000, 1151; ENGM 2440, 3350, 4800; ES 2700, 2900, 3884; and any course numbered 2860
    b. Mathematics courses numbered 2420 or higher except MATH 3000
    c. Chemistry courses numbered 2000 or higher
    d. Physics courses numbered 2000 or higher
    e. Astronomy courses
    f. Biological Science courses
    g. Earth and Environmental Science courses
    h. Neuroscience courses

    At least 3 hours of technical electives must be numbered 2000 or above.
8. Professional (ME) depth (a minimum of 9 hours). Each student must choose at least 9 hours of ME elective courses. No more than 6 hours of 3850 and 3860 combined can be credited toward ME depth electives.

No one-credit-hour ME course except 3841 can be used as a mechanical engineering elective. A maximum of three one-credit-hour ME courses may be used as technical electives. Additional ME one-credit-hour courses can be open electives. At least one “W”-designated course (3 hours) in the English language must be included on a graded basis.

Undergraduates in mechanical engineering may apply the pass/fail option only to non-departmental courses taken as open electives, technical electives, or part of the liberal arts core, subject to the school requirements for pass/fail.

Specimen Curriculum for Mechanical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
ME 2160	Introduction to Mechanical Engineering Design	3	–
MATH 2300	Multivariable Calculus	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CE 2200	Statics	3	–
ME 2171	Instrumentation Laboratory	–	2
ME 2190	Dynamics	–	3
ME 2220	Thermodynamics	–	3
ECE 2112	Circuits I	–	3
	Liberal Arts Core	3	3
		16	17

JUNIOR YEAR		FALL	SPRING
ME 3202	Machine Analysis and Design	3	–
ME 3204	Mechatronics	–	3
ME 3224	Fluid Mechanics	3	–
ME 3234	System Dynamics	4	–
ME 3248	Heat Transfer	–	3
CE 2205	Mechanics of Materials	3	–
MSE 2205	Strength and Structure of Engineering Materials	1	–
	Mechanical Engineering Elective	–	3
	Open Elective	–	3
	Liberal Arts Core	3	–

	Mathematics Elective	–	3
		17	15
SENIOR YEAR			
ME 4213	Energetics Laboratory	2	–
ME 4950	Design Synthesis	2	–
ME 4951	Engineering Design Projects	–	3
ME 4959	Senior Engineering Design Seminar	1	–
	Mechanical Engineering Elective	3	3
	Liberal Arts Core	3	3
	Technical Elective	6	3
	Open Elective	–	3
		17	15

Medicine, Health, and Society

Program of Concentration in Medicine, Health, and Society

Honors Program

Minor in Medicine, Health, and Society

Approved Courses

DIRECTOR Jonathan M. Metzl

ASSISTANT DIRECTOR JuLeigh Petty

DIRECTOR OF UNDERGRADUATE STUDIES Dominique Behague

DIRECTOR OF GRADUATE STUDIES JuLeigh Petty

DIRECTOR OF ADVISING Courtney S. Peterson

DIRECTOR OF EVALUATION JuLeigh Petty

PROFESSORS Christopher Carpenter (Economics), Jonathan M. Metzl, Hector Myers

ASSOCIATE PROFESSORS Dominique Béhague, Aimi Hamraie, Martha W. Jones, Kenneth MacLeish, Lijun Song, Laura Stark

ASSISTANT PROFESSORS Kirsty Clark, Gilbert Gonzales, Lucie Kalousova, Bianca Manago (Sociology), Tara McKay

ASSISTANT PROFESSORS OF PRACTICE Jamie Pope

SENIOR LECTURERS Celina Callahan-Kapoor, Courtney S. Peterson, JuLeigh Petty

WRITERS IN RESIDENCE Odie Lindsey, Samuel Quinones, Caroline Williams

Affiliated Faculty

PROFESSORS Kathryn Anderson (Economics), Victor Anderson (Christian Ethics), David Aronoff (Medicine), Gregory Barz (Ethnomusicology), Michael Bess (History), James Blumstein (Health Law and Policy), Frank Boehm (Obstetrics and Gynecology), Peter Buerhaus (Nursing), C. André Christie-Mizell (Sociology), Larry Churchill (Medicine), Ellen Clayton (Pediatrics and Law), Jay Clayton (English), Charles Cobb (Molecular Physiology and Physics), Bruce Compas (Psychology and Human Development), Katherine Crawford (History), Kate Daniels (English), Dennis Dickerson (History), Edward Fisher (Anthropology), Lenn Goodman (Philosophy), Douglas Heimburger (Medicine), Joni Hersch (Law and Economics), David Hess (Sociology), Kathleen Hoover-Dempsey (Psychology and Human Development), Sarah Igo (History), Carl Johnson (Biological Sciences), Cindy Kam (Political Science), John Lachs (Philosophy), Jane Landers (History), Jana Lauderdale (Nursing), Pat Levitt (Pharmacology), Terry A. Maroney (Law), Richard McCarty (Psychology), Melissa McPheeters (Health Policy), Timothy McNamara (Psychology), Velma McBride Murry (Human and Organizational Development), Linda Norman (Nursing), Russell Rothman (Medicine), Sharon Shields (Human and Organizational Development), John Tarpley (Surgery), Benigno Trigo (Spanish), Arleen Tuchman (History), Holly Tucker (French), Bart Victor (Organization Studies), Kip Viscusi (Law and Economics), Lynn Walker (Pediatrics and Psychology and Human Development), Kenneth Wallston (Nursing and Psychology), David W. Wright (Chemistry), Laurence Zwiebel (Biological Sciences)

ASSOCIATE PROFESSORS Muktar Aliyu (Health Policy and Medicine), Laura Carpenter (Sociology), Beth Conklin (Anthropology), Julián F. Hillyer (Biological Sciences), Rolanda Johnson (Nursing), Melanie Lutenbacher (Nursing), Abelardo Moncayo (Health Policy), Ifeoma Nwankwo (English), Evelyn Patterson (Sociology), Scott Pearson (Surgery), Louise Rollins-Smith (Nursing), Ruth Rogaski (History), Norbert Ross (Anthropology), David Schlundt (Psychology), Phillis Sheppard (Religion), Tiffiny Tung (Anthropology), Timothy J. Vogus (Management and Organization Studies)

ASSISTANT PROFESSORS Carolyn Audet (Preventive Medicine), Ian Campbell (Clinical Medicine), Joseph B. Fanning (Medicine), Ebony McGee (Education), Troy Moon (Pediatric Infectious Disease), Sayeh Nikpay (Health Policy), Kevin T. Seale (Biomedical Engineering)

SENIOR LECTURERS Lorraine Catanzaro (Spanish), Nathalie Porter (French), Elisabeth H. Sandberg (Psychology)

COURSES OFFERED: MHS

The Program in Medicine, Health, and Society offers an interdisciplinary major (36 credit hours) and minor (18 credit hours) for students interested in studying health-related beliefs and practices in their social and cultural contexts. As part of the requirements of the major, students must declare and complete 12 credit hours in one of the six concentrations in Medicine, Health, and Society: global health; health behaviors and health sciences; health economics and policy; inequality, intersectionality, and health justice; medicine, humanities, and arts; or critical health studies. An honors program is available. MHS draws on a variety of fields in the social sciences and humanities—anthropology, economics, history, literature, philosophy/ethics, psychology, sociology, and religious studies. The major will be of particular interest to students preparing for careers in health-related professions as well as to students interested in examining an important part of human experience from multiple perspectives and developing a critical understanding of contemporary society. Students are encouraged to take advantage of the opportunities offered by the Center for Medicine, Health, and Society. Visit vanderbilt.edu/mhs for more details.

The program is directed by Jonathan M. Metzl, Frederick B. Rentschler II Professor of Sociology and Medicine, Health, and Society.

Program of Concentration in Medicine, Health, and Society

The major requires a minimum of 36 credit hours of course work, distributed as follows:

Note: No more than 21 credit hours may be in courses designated MHS. Other than MHS, no more than 12 credit hours may be in the same subject area; A&S Psychology and Peabody Psychology are considered the same subject area for purposes of the major/minor.

1. Core Courses — Students must complete one of the following (3 credit hours):

MHS 1920, Politics of Health

MHS 1930, Social Dimensions of Health and Illness

MHS 1940, Racial and Ethnic Health Disparities

MHS 1950, Theories of the Body

MHS 2110, American Medicine in the World

MHS 2230, Masculinity and Men's Health

MHS 3890, Topic: COVID and Society

ANTH 2342, Biology of Inequality

2. Concentration — Students must complete four courses not used to satisfy the core course requirement or the elective requirements in one of the following six concentrations (12 credit hours). Students must declare one of the following concentrations when they declare the major.

Note: Courses must be from at least two subject areas.

A. Global health
B. Health policies and economies
C. Health behaviors and health sciences
D. Inequality, intersectionality, and health justice
E. Medicine, humanities, and arts
F. Critical health studies

See below for a list of courses that count for Concentrations A, B, C, D, and E. Students choosing concentration F must propose a set of four courses (12 credit hours) that form a coherent program of study related to critical health studies and receive approval from the director of undergraduate studies.

3. Electives — Seven courses not used to satisfy the core course or concentration requirements chosen from the list of approved courses (21 credit hours).

4. Disciplinary Requirement — At least 3 credit hours from the following courses must be used to satisfy the concentration requirement or electives requirement.

ANTH 2213W, Food, Identity, and Culture

ANTH 3143, Medical Anthropology

ANTH 3141, Anthropology of Healing

ANTH 3345, Genetics in Society

CSET 2500, Science for Everyone

CSET 3890, Genetic Breakthroughs: The Promise

ECON 2350, Health Care Policy

ECON 3350, Economics of Health

GSS 3305, Gender and Sexuality in Times of Pandemic

HIST 2780, Superhuman Civilization

HIST 2800, Modern Medicine

MHS 1960, Health Humanities

MHS 2140, Health Care in the United States: Policy and Politics

MHS 3050W, Medicine and Literature

MHS 3120, Medicine, Science, and Technology

MUSL 3235, Music, Pandemics, and History

PHIL 1008, 1008W, Introduction to Medical Ethics

PHIL 3608, Ethics and Medicine

PSY 3635, Health Psychology

RLST 4834, Post-Freudian Theories and Religion

SOC 3301, Society and Medicine

SOC 3304, Race, Gender, and Health

SOC 3306, Gender and Medical Work

In order to graduate with a major in MHS, students must take a written exam in the second semester of their senior year. (Students who are away during the second semester of their senior year because they are studying abroad or graduating early should schedule the exam during the first semester.) The exam is not graded and no grade will appear on the student's transcript. The purpose of the exam is to ascertain the extent to which MHS majors demonstrate knowledge of the MHS curriculum.

Honors Program

The Honors Program in Medicine, Health, and Society offers superior students a more intensive concentration within their major field. Admission to the program requires:

1. *A 3.3 cumulative grade point average.*
2. *A 3.3 cumulative grade point average in courses that count toward the Medicine, Health, and Society major.*
3. *An application that (a) describes the proposed topic; (b) identifies the faculty member who will serve as the thesis adviser; and (c) includes a letter of recommendation from the proposed thesis adviser.*

Completion of the program requires:

1. Two semesters, 3 credit hours each semester of the senior year in MHS 4998/4999.
2. An honors thesis of approximately fifty pages that reveals an interdisciplinary perspective, submitted no later than two weeks before the first day of final exams in the second semester of the senior year, and approved by a committee of at least two faculty members (one of whom must have their primary appointment in Medicine, Health, and Society).
3. Successful completion of an oral examination focusing on the topic of the thesis.

Minor in Medicine, Health, and Society

The minor consists of a minimum of 18 credit hours of course work, distributed as follows:

Note: No more than 9 credit hours may be in the same subject area; A&S Psychology and Peabody Psychology are considered the same subject area for purposes of the major/minor.

1. Core Courses — Students must complete one of the core courses of the major (3 credit hours).
2. Concentration — Students must complete three courses in one of the following five concentrations (9 credit hours). Students must declare one of the following concentrations when they declare the minor.
    A. Global health
    B. Health policies and economies
    C. Health behaviors and health sciences
    D. Inequality, intersectionality, and health justice
    E. Medicine, humanities, and arts

3. Electives — Two additional courses, excluding those with an asterisk, chosen from the list of approved courses. (6 credit hours)

4. Disciplinary Requirement — At least 3 credit hours from the following courses must be used to satisfy the concentration requirement or electives requirement.

ANTH 2213W, Food, Identity, and Culture

ANTH 3143, Medical Anthropology

ANTH 3141, Anthropology of Healing

ANTH 3345, Genetics in Society

ECON 2350, Health Care Policy

CSET 2500, Science for Everyone

CSET 3890, Genetic Breakthroughs: The Promise

ECON 3350, Economics of Health

GSS 3305, Gender and Sexuality in Times of Pandemic

HIST 2780, Superhuman Civilization

HIST 2800, Modern Medicine

MHS 1960, Health Humanities

MHS 2140, Health Care in the United States: Policy and Politics

MHS 3050W, Medicine and Literature

MHS 3120, Medicine, Science, and Technology

MUSL 3235, Music, Pandemics, and History

PHIL 1008, 1008W, Introduction to Medical Ethics

PHIL 3608, Ethics and Medicine

PPS 3200, Research Methods for Public Policy Analysis

PSY 3635, Health Psychology

RSLT 4834, Post-Freudian Theories and Religion

SOC 3301, Society and Medicine

SOC 3304, Race, Gender, and Health

SOC 3306, Gender and Medical Work

Approved Courses

(Please consult the director of undergraduate studies for approval of “as appropriate” courses in concentration areas.)

CONCENTRATION A: Global Health

AMERICAN STUDIES: 3200, Global Perspectives on the U.S.

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2113W, Food, Identity, and Culture; 3122, The

Anthropology of Globalization; 3138 Global Food Politics; 3143, Medical Anthropology.

ASIAN STUDIES: 2630, Chinese Medicine.

BIOLOGICAL SCIENCES: 1111, First-Year Writing Seminar (as appropriate); 3965, Undergraduate Seminar (as appropriate). FRENCH: 3112, Medical French in Intercultural Contexts.

COMMUNICATION OF SCIENCE AND TECHNOLOGY: 3890, Genetic Breakthroughs: The Promise.

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2267, Seminar on Gender and Violence; 3201, Women and Gender in Transnational Context; 3305, Gender and Sexuality in Times of Pandemic.

HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2160, Medicine in Islam.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3200, Global Dimensions of Community Development; 3231, Introduction to Health Services.

INTERDISCIPLINARY STUDIES: 3831, Global Citizenship and Service; 3832, Global Community Service; 3833, Seminar in Global Citizenship and Service (as appropriate).

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future.

MEDICINE, HEALTH, AND SOCIETY: 2110, American Medicine and the World; 2140, Health Care in the United States: Policy and Politics; 2310, Chinese Society and Medicine; 2410, HIV/AIDS in the Global Community; 2420, Economic Demography and Global Health; 2610, Global Health Crises; 2940, Race, Citizenship, and Health; 3000, Undergraduate Seminar (as appropriate); 3010, Perspectives on Global Public Health; 3110, Global Health and Social Justice; 3310, Healthcare Systems Comparisons; 3890, Special Topics (as appropriate); 4010, Psychiatry, Culture, and Globalization.

POLITICAL SCIENCE: 1111, First-Year Writing Seminar (as appropriate); 2215, Change in Developing Countries; 2236, The Politics of Global Inequality; 3893, Selected Topics in American Government (as appropriate); 3894, Selected Topics in Comparative Politics (as appropriate).

PUBLIC POLICY STUDIES: 3200, Research Methods for Public Policy Analysis.

RELIGIOUS STUDIES: 3890, Special Topics - Mindfulness, Religion, and Healing.

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3314, Environmental Inequality and Justice; 3321, Population and Society. SPANISH: 3830, Spanish for the Medical Profession; 4760, Literature and Medicine.

CONCENTRATION B: Health Policies and Economies

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2109, Food Politics in America; 3144, Politics of Reproductive Health; 3890, Special Topics (as appropriate).

ECONOMICS: 1010, Principles of Macroeconomics; 1020, Principles of Microeconomics; 1111, First-Year Writing Seminar (as appropriate); 1500, Economic Statistics; 1510, Intensive Economic Statistics; 2350, Health Care Policy; 3050, Introduction to Econometrics; 3350, Economics of Health.

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate). HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2800, Modern Medicine.

HISTORY: 2780, Superhuman Civilization.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3231, Introduction to Health Services; 3241, Introduction to Health Policy; 3331, Managing Health Care Organizations; 3205, Policy Analysis Methods.

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future.

MEDICINE, HEALTH, AND SOCIETY: 1920, Politics of Health; 2120, Health Social Movements; 2140, Health Care in the United States: Policy and Politics; 2520, Autism in Context; 2320, Medicine, Law, and Society; 2420, Economic Demography and Global Health; 2920, Medicine on Trial; 3000, Undergraduate Seminar (as appropriate); 3120, Medicine, Science, and Technology; 3320, Introduction to U.S. Health Care Policy; 3890, Special Topics (as appropriate).

PHILOSOPHY: 1008, 1008W, Introduction to Medical Ethics; 1111, First-Year Writing Seminar (as appropriate); 3608, Ethics and Medicine.

POLITICAL SCIENCE: 1111, First-Year Writing Seminar (as appropriate); 2236, The Politics of Global Inequality; 2270, Conducting Political Research; 3893, Selected Topics in American Government (as appropriate); 3894, Selected Topics in Comparative Politics (as appropriate).

PUBLIC POLICY STUDIES: 3200, Research Methods for Public Policy Analysis.

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3302, Poverty, Health, and Politics; 3306, Gender and Medical Work; 3314, Environmental Inequality and Justice; 4961, Seminars in Selected Topics (as appropriate).

UNIVERSITY: 3325, Health Policy Analysis and Advocacy.

CONCENTRATION C: Health Behavior and Health Sciences

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2227, Food in the Ancient World; 3344, Genetic Anthropology Lab Techniques; 3345, Genetics in Society; 3346, Human Adaptation and Disease; 3890, Special Topics (as appropriate); 4345, Human Evolutionary Genetics.

BIOLOGICAL SCIENCES: 1105, Human Biology; 1111, First-Year Writing Seminar (as appropriate); 3243 Genetics of Disease; 3245, Biology of Cancer; 3254, Neurobiology of Behavior; 3270, Statistical Methods in Biology; 3965, Undergraduate Seminar (as appropriate).

BIOMEDICAL ENGINEERING: 3200, Analysis of Biomedical Data.

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2240, Introduction to Women's Health.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3221, Health Service Delivery to Diverse Populations; 3311, Introduction to Health Promotion.

MEDICINE, HEALTH, AND SOCIETY: 1930, Social Dimensions of Health and Illness; 1940, Racial and Ethnic Health Disparities; 2120, Health Social Movements; 2330, Men's Health Research and Policy; 2430, Social Capital and Health; 2950, Healing Animals; 3000, Undergraduate Seminar (as appropriate); 3030, Community Health Research; 3450, Mental Illness Narratives; 3890, Special Topics (as appropriate).

NEUROSCIENCE: 2201, Neuroscience; 3235, Biological Basis of Mental Disorders.

PSYCHOLOGY: 1111, First-Year Writing Seminar (as appropriate); 1200, General Psychology; 2100, Quantitative Methods; 2150, Principles of Experimental Design; 3100, Abnormal Psychology; 3620, Schizophrenia; 3625, Depression; 3635, Health Psychology; 3705, Human Sexuality; 3750, Perception; 3760, Mind and Brain; 3785, Brain Damage and Cognition; PSY-PC-1250, Developmental Psychology; PSY-PC 2102, Statistical Analysis; PSY-PC 2110, Introduction to Statistical Analysis; PSY-PC-2250, Cognitive Aspects of Human Development; PSY-PC-2300, PSY-PC-Social and Emotional Context of Cognition; PSY-PC-2550, Adolescent Development; PSY-PC-3650, Advanced Topical Seminar (approval dependent upon topic).

SOCIOLOGY: 1010, 1010W, Introduction to Sociology; 1020, 1020W, Contemporary Social Issues; 1111, First-Year Writing Seminar (as appropriate); 2100, Statistics for Social Scientists; 3002, Introduction to Social Research; 3003, Research Practicum; 3301, Society and Medicine; 3303, Social Dynamics of Mental Health; 4961, Seminars in Selected Topics (as appropriate). **Only one of SOC 1010 or 1020 may be counted towards the major or minor* .

CONCENTRATION D: Inequality, Intersectionality, and Health Justice

AFRICAN AMERICAN AND DIASPORA STUDIES: 1016, Race Matters; 1111, First-Year Writing Seminar (as appropriate); 3214, Black Masculinity: Social Imagery and Public Policy.

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2213W, Food, Identity, and Culture; 2342, Biology of Inequality; 3120, Sociocultural Field Methods (as appropriate); 3144, Politics of Reproductive Health; 3343, Biology and Culture of Race; 3345, Genetics in Society; 3890, Special Topics (as appropriate); 4345, Human Evolutionary Genetics.

COMMUNICATION OF SCIENCE AND TECHNOLOGY: 3890, Genetic Breakthroughs: The Promise.

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2268, Gender, Race, Justice, and the Environment; 3305, Gender and Sexuality in Times of Pandemic.

HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2780, Superhuman Civilization; 3040, Health and the African American Experience.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3221, Health Service Delivery to Diverse Populations.

MEDICINE, HEALTH, AND SOCIETY: 1940, Racial and Ethnic Health Disparities; 2230, Masculinity and Men's Health; 2240, Bionic Bodies, Disability Cultures; 2330, Men's Health Research and Policy; 2940, Race, Citizenship, and Health; 3000, Undergraduate Seminar (as appropriate); 3030, Community Health Research; 3040, Designing Healthy Publics; 3890, Special Topics (as appropriate).

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3301, Society and Medicine; 3304, Race, Gender, and Health; 3306, Gender and Medical Work; 3321, Population and Society; 3723, Gender, Sexuality, and the Body; 4961, Seminars in Selected Topics (as appropriate).

CONCENTRATION E: Medicine, Humanities, and Arts

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2370, Death and the Body; 3141, Anthropology of Healing; 3142, Medicine, Culture, and the Body; 3143, Medical Anthropology; 3345, Genetics in Society.

ASIAN STUDIES: 2630, Chinese Medicine.

COMMUNICATION STUDIES: 3750, Rhetoric of the Body.

ENGLISH: 1111, First-Year Writing Seminar (as appropriate); 3720, 3720W, Literature, Science, and Technology (as appropriate); 3730, Literature and the Environment: Contemporary Climate Fiction; 3891, Special Topics in Creative Writing (as appropriate).

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2267, Seminar on Gender and Violence; 2612, Lesbian, Gay, Bisexual, and Transgender Studies.

HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2160, Medicine in Islam; 2800, Modern Medicine; 2810, Women, Health, and Sexuality; 2835, Sexuality and Gender in the Western Tradition to 1700; 2840, Sexuality and Gender in the Western Tradition since 1700; 3040, Health and the African American Experience.

HISTORY OF ART AND ARCHITECTURE: 3140, Healing and Art in East Asia.

JEWISH STUDIES: 2710W, Jewish Sexual Ethics.

MUSICOLOGY/ETHNOMUSICOLOGY: 3235, Music, Pandemics, and History.

MEDICINE, HEALTH, AND SOCIETY: 1111, First-Year Writing Seminar: Medicine, Health, and the Body; 1960, Health Humanities; 2230, Masculinity and Men's Health; 2250, War and the Body; 2950, Healing Animals; 3000, Undergraduate Seminar (as appropriate); 3050W, Medicine and Literature; 3120, Medicine, Science, and Technology; 3150, Death and Dying in America; 3250, Perspectives on Trauma; 3450, Medical Illness Narratives; 3890, Special Topics (as appropriate); 4010, Psychiatry, Culture, and Globalization; 4050, Narrative and Medicine: Stories of Illness and the Doctor-Patient Relationship.

PHILOSOPHY: 1008, 1008W, Introduction to Medical Ethics; 1111, First-Year Writing Seminar (as appropriate); 3606, 3606W, Moral Problems; 3608, Ethics and Medicine; 3630, Philosophy of Mind.

RELIGIOUS STUDIES: 3941, Religion, Science, and Evolution: Psychology of Religious Myth and Ritual.

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate).

SPANISH: 4760, Literature and Medicine.

OTHER ELECTIVES

In addition to the electives listed below, any course from the above concentration areas may serve as an elective if it is not already being used to satisfy a concentration requirement. No more than 12 hours of courses with an asterisk in the list below may be used to satisfy the major. Courses with an asterisk may not be used to satisfy the minor. (Please consult the director of undergraduate studies for approval of "as appropriate" courses for electives.)

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 1301, Introduction to Biological Anthropology; 3372, Human Osteology; 4373, Health and Disease in Ancient Populations.

BIOLOGICAL SCIENCES: *1510–1511, Introduction to Biological Sciences; *2520, Biochemistry.

CHEMISTRY: *2221–2222, Organic Chemistry; *2211–2212, Organic Chemistry for Advanced Placement Students.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3342, Introduction to Community Psychology (same as PSY-PC); 3890, Health Promotion Delivery.

MATHEMATICS: 1011, Probability and Statistical Inference; 2810, Probability and Statistics for Engineering; 2820, Introduction to Probability and Mathematical Statistics.

MEDICINE, HEALTH, AND SOCIETY: 1001, Commons Seminar; *1500, Introduction to Microbiology; *1600, Introduction to Nutrition and Health for a Changing World; *3101–3102, Anatomy and Physiology; 3831, Service Learning Research and Readings (Note: 3831, Service Learning Research and Readings, must be taken concurrently with 3830); 3850, Independent Study; 3881, Internship Readings and Research (Note: 3881, Internship Readings and Research, must be taken concurrently with 3880).

PHILOSOPHY: 1111, First-Year Writing Seminar (as appropriate); 3606, 3606W, Moral Problems; 3630, Philosophy of

Mind.

PSYCHOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3600, Personality; 3610, Introduction to Clinical Psychology OR PSY-PC- 3200, Introduction to Clinical Psychology; 3615, Emotion; PSY-PC-1205, PSY-PC-1207, Minds, Brains, Cultures, and Contexts; PSY-PC-2400, Social and Personality Development; PSY-PC-2500, Infancy; PSY-PC-2550, PSY-PC-3650, Advanced Topical Seminar (as appropriate).

SOCIOLOGY: 4961, Seminars in Selected Topics (as appropriate).

Nanoscience and Nanotechnology

Nanoscience and Nanotechnology Minor

DIRECTORS Paul E. Laibinis, Sandra J. Rosenthal

Affiliated Faculty

PROFESSORS Joshua D. Caldwell (Mechanical Engineering), David E. Cliffel (Chemistry), Craig L. Duvall (Biomedical Engineering), Philippe M. Fauchet (Electrical and Computer Engineering), Daniel M. Fleetwood (Electrical and Computer Engineering), Todd D. Giorgio (Biomedical Engineering), Scott A. Guelcher (Chemical and Biomolecular Engineering), Richard F. Haglund, Jr. (Physics), Timothy P. Hanusa (Chemistry), Frederick R. Haselton (Biomedical Engineering), De-en Jiang (Chemical and Biomolecular Engineering), G. Kane Jennings (Chemical and Biomolecular Engineering), Michael R. King (Biomedical Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), Deyu Li (Mechanical Engineering), Sokrates T. Pantelides (Physics), Peter N. Pintauro (Chemical and Biomolecular Engineering), Cynthia A. Reinhart-King (Biomedical Engineering), Sandra J. Rosenthal (Chemistry), Florence Sanchez (Civil and Environmental Engineering), Ronald D. Schrimpf (Electrical and Computer Engineering), Norman H. Tolk (Physics), Kalman Varga (Physics), Sharon M. Weiss (Electrical and Computer Engineering), John P. Wikswo, Jr. (Physics), David W. Wright (Chemistry)

ASSOCIATE PROFESSORS Leon Bellan (Mechanical Engineering), Shihong Lin (Civil and Environmental Engineering), Ethan S. Lippman (Chemical and Biomolecular Engineering), Janet E. Macdonald (Chemistry), Bridget R. Rogers (Chemical and Biomolecular Engineering), Jason G. Valentine (Mechanical Engineering), Greg Walker (Mechanical Engineering), John T. Wilson (Chemical and Biomolecular Engineering)

ASSISTANT PROFESSORS Lauren Buchanan (Chemistry), Mona Ebrish (Electrical and Computer Engineering), Piran Kidambi (Chemical and Biomolecular Engineering), Justus C. Ndukaife (Electrical and Computer Engineering), Carlos A. Silvera Batista (Chemical and Biomolecular Engineering)

RESEARCH PROFESSORS Peter T. Cummings (Chemical and Biomolecular Engineering), Clare M. McCabe (Chemical and Biomolecular Engineering), Peter Pintauro (Chemical and Biomolecular Engineering)

RESEARCH ASSOCIATE PROFESSOR James R. McBride (Chemistry)

RESEARCH ASSISTANT PROFESSORS Dmitry Koktysh (Chemistry), Alice Leach (Materials Science)

COURSES OFFERED: NANO

Faculty in the School of Engineering and the College of Arts and Science offer an interdisciplinary minor in nanoscience and nanotechnology. The minor is administered by the School of Engineering.

Nanoscience and nanotechnology are based on the ability to synthesize, organize, characterize, and manipulate matter systematically at dimensions of ~1 to 100 nm, creating uniquely functional materials that differ in properties from those prepared by traditional approaches. At these length scales, materials can take on new properties that can be exploited in a wide range of applications such as for solar energy conversion, ultra-sensitive sensing, and new types of vaccines. These activities require the integration of expertise from various areas of science and engineering, often relying on methods of synthesis, fabrication, and characterization that are beyond those encountered in an individual course of study.

Students who minor in nanoscience and nanotechnology learn the principles and methods used in this rapidly growing field. Its core originates in the physical sciences by providing key approaches for describing the behavior of matter on the nanoscale. Synthetic approaches are used to manipulate matter systematically, for creating uniquely functional nanomaterials that can be inorganic, organic, biological, or a hybrid of these. With a third component of characterization, a process for designing systems to have particular properties as a result of their composition and nanoscale arrangement emerges. Students are introduced to these areas through foundational and elective courses for the minor that are specified below, the latter of which can be selected to fulfill the degree requirements for their major.

The minor in nanoscience and nanotechnology is supported by the Vanderbilt Institute of Nanoscale Science and Engineering (VINSE) that brings together faculty from the College of Arts and Science, the School of Engineering, and the Medical Center. A specialized laboratory facility maintained by VINSE provides students in the minor with capstone experiences that allow them to prepare and characterize a variety of nanostructured systems using in-house state-of-the-art instrumentation. This hands-on laboratory component enhances the attractiveness of students to both employers and graduate schools.

Nanoscience and Nanotechnology Minor

The minor in nanoscience and nanotechnology requires a total of 15 credit hours, distributed as follows:

1. Nano Core (6 hours). NANO 3000 and one of CHEM 2610 or CHBE 4840 or PHYS 2660.
2. Elective courses. 9 hours selected from the following list of approved subjects:

BME 4200	Principles and Applications of BioMicro ElectroMechanical Systems (BioMEMS)
BME 4500	Nanobiotechnology
CHBE 4830	Molecular Simulation
CHBE 4840	Synthesis and Applications of 2D Nanomaterials
CHBE 4850	Semiconductor Materials Processing
CHBE 4860	Molecular Aspects of Chemical Engineering
CHBE 4870	Polymer Science and Engineering
CHBE 4880	Corrosion Science and Engineering
CHEM 2610	Introduction to Nanochemistry
CHEM 3300	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 3630	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
CHEM 5610	Chemistry of Inorganic Materials
ECE 4283	Principles and Models of Semiconductor Devices
ECE 4284	Integrated Circuit Technology and Fabrication
ECE 4288	Optoelectronics
ECE 4385	VLSI Design
ECE 6306	Solid-State Effects and Devices I
IMS 5320	Nanoscale Science and Engineering
IMS 6310	Atomic Arrangements in Solids
ME 8320	Statistical Thermodynamics
ME 8323	Micro/Nanoelectromechanical Systems
ME 8365	Micro/Nanoscale Energy Transport
PHYS 2255	Modern Physics and the Quantum World
PHYS 2660	Experimental Nanoscale Fabrication and Characterization
PHYS 3640	Physics of Condensed Matter

Courses taken to satisfy relevant degree requirements for majors in the College of Arts and Science and the School of Engineering may also be counted toward fulfilling the minor.

Neuroscience

Program of Concentration

Honors Program

Minor in Neuroscience

DIRECTOR Douglas G. McMahon

DIRECTOR OF UNDERGRADUATE STUDIES Elizabeth Catania

DIRECTOR OF INDEPENDENT STUDIES Elizabeth Catania

DIRECTOR OF HONORS Meredyth Wegener

Steering Committee

PROFESSORS Timothy McNamara (Psychology), Lisa Monteggia (Pharmacology), Brandt F. Eichman (Biological Sciences)

ASSOCIATE PROFESSOR Suzanna Herculano-Houzel (Psychology and Biological Sciences)

ASSISTANT PROFESSOR OF THE PRACTICE Elizabeth Catania (Neuroscience)

SENIOR LECTURER Meredyth Wegener (Neuroscience)

COURSES OFFERED: NSC

The study of the nervous system is an interdisciplinary enterprise that draws upon a variety of scientific disciplines ranging from molecular biology and biophysics to computational science and engineering to the study of behavior and cognition. To meet the challenge of providing training for entry into this exciting and growing field, Vanderbilt offers an interdisciplinary program of concentration in neuroscience that utilizes expertise from several departments within the university. The program consists of three components. The first provides for a broad foundation in the basic sciences and mathematics. Second, the program provides for exposure to each of the general areas of neuroscience including courses in cellular/molecular, systems, and integrative/cognitive neuroscience. This course work is supplemented with exposure to the laboratory techniques utilized in neuroscience research. Finally, the program allows students to pursue more work in the specific sub-disciplines of neuroscience and in areas of inquiry related to neuroscience through elective courses. Students are especially encouraged to participate in research in the laboratories of neuroscience faculty under the auspices of the undergraduate research courses. More extensive research experience is available through the Honors Program in Neuroscience. For additional information, see as.vanderbilt.edu/neuroscience.

Program of Concentration

The neuroscience major consists of 38 credit hours of course work that includes 8 credit hours of organic chemistry and 30 credit hours of neuroscience and related courses distributed among specific disciplines associated with the study of neuroscience. Students majoring in neuroscience are additionally required to complete a core of introductory courses in mathematics, statistics or computer science, biology and physics that provide the broad scientific background necessary to the study of neuroscience. The areas and associated course options are listed below. Excluding research credit (3861, 3862, 3863, 3864, and 4999), the neuroscience and related courses must be drawn from at least two departments or programs.

Students seeking a second major within the College of Arts and Science may count a maximum of 6 credit hours of 2000-or-higher-level course work to meet the requirements of both majors.

Required Math and Science Courses

Biological Sciences (8 credit hours)

BSCI 1510, 1511, 1510L, and either 1511L or 1512L.

Chemistry (8 credit hours)

CHEM 2211 or 2221; CHEM 2212 or 2222; and CHEM 2221L and 2222L.

Mathematics, Statistics, Computer Science (6–8 credit hours)

MATH 1100, 1200, or 1300; and one of MATH 1201, 1301, BSCI 3270, PSY 2100, PSY-PC 2110, CS 1101, 1103, or 1104.

Physics (8 credit hours)

PHYS 1501, 1601 or 2051; PHYS 1502, 1602 or 2053; PHYS 1501L, 1601L or 2052; and PHYS 1502L, 1602L, or 2054.

Neuroscience Courses

Introduction to Neuroscience (3 credit hours)

NSC 2201.

Cellular and Molecular Neuroscience (6 credit hours)

BSCI 3252, 3256; NSC 3235, 3240, 3245, 3260, 3269, 3891; PSY 3630.

Systems, Integrative, and Cognitive Neuroscience (6 credit hours)

BSCI 3230, 3254; NSC 3270, 3274, 3892, 4961, 4969; PSY 3120, 3620, 3700, 3730, 3750, 3760, 3765, 3775, 3780, 3785, 3892; PSY-PC 3190.

Neuroscience Laboratory (6 credit hours)

NSC 3861, 3862.

Neuroscience Electives (6 credit hours)

Two additional courses from the Cellular and Molecular Neuroscience and/or Systems, Integrative, and Cognitive Neuroscience courses listed above. NSC 3863 or NSC 4999 may be used to count for one elective course.

Related Course Electives

(3 credit hours; one course not used to satisfy the Required Math and Science course requirement above.)

BSCI 2201, 2201L, 2210, 2210L, 2520, 3270, 4265; BME 3100, 3101; CHEM 2100, 3310, 3710, 4720; CS 1101 or 1103 or 1104; MATH 2300, 2400 or 2420; PHIL 3616, 3630; PSY 2100, 3100, 3600, 3625, 3705, 3715, 3810.

Honors Program

Superior students with a strong interest in research are encouraged to consider the Honors Program in Neuroscience. Normally a student will apply to enter the Honors Program in the second semester of the junior year and assemble an Honors Committee that will consist of the research mentor and at least two other appropriate members of the faculty. Entrance into and satisfactory completion of the Honors Program requires that students maintain a cumulative grade point average of 3.3 and a grade point average of 3.3 in courses counting toward the neuroscience major. Honors candidates must meet all the normal requirements for the neuroscience major, but are expected to complete at least 6 hours of advanced research course work (from NSC 3863, 3864 and 4999). Three of these research-credit hours may count toward neuroscience elective course work. As part of this research course work, the candidate will be expected to write an honors thesis, present the thesis during the final semester in residence, and satisfactorily pass an oral examination by the student's Honors Committee. Students interested in becoming honors candidates should consult with the director of honors. For more information on the Honors Program, please see as.vanderbilt.edu/neuroscience/the-honors-program.

Minor in Neuroscience

This program provides a foundation of knowledge in neuroscience that is appropriate for students majoring in a related discipline or who have a general interest in the nervous system. As prerequisites, students are required to complete CHEM 1601 and 1601L, BSCI 1510 –1511, 1510L, and either 1511L or 1512L. The minor program consists of 18 credit hours of course work distributed as follows:

NSC 2201.

3 credit hours in Statistics/Computer Science: BSCI 3270, PSY 2100, PSY-PC 2110, CS 1101, 1103, or 1104.

6 credit hours chosen from the courses listed as “Cellular and Molecular Neuroscience.”

6 credit hours chosen from the courses listed as “Systems, Integrative and Cognitive Neuroscience.”

The chosen courses counting towards the 18 credit hours must come from at least 3 different departments or programs (e.g. NSC, PSY, and BSCI).

Research courses (NSC 3860, 3861, 3862, 3863, 3864, and 4999) do not count towards the minor.

Philosophy

Program of Concentration in Philosophy

Honors Program

Minor in Philosophy

CHAIR Paul C. Taylor

DIRECTOR OF UNDERGRADUATE STUDIES Andrew Sucre

DIRECTOR OF GRADUATE STUDIES Scott Aikin

PROFESSORS EMERITI Robert R. Ehman, Marilyn Friedman, John Lachs, Larry May, John F. Post, Charles E. Scott, Donald W. Sherburne, Henry A. Teloh, Jeffrey Tlumak

PROFESSORS Lenn E. Goodman, Michael P. Hodges, Kelly Oliver, Lucius T. Outlaw Jr., Robert Talisse, Paul C. Taylor

ASSOCIATE PROFESSORS Scott Aikin, Karen Ng, Idit Dobbs-Weinstein, Julian Wuerth

ASSISTANT PROFESSORS Matthew Congdon, Emanuele Costa, Diana Heney

SENIOR LECTURER, EMERITUS Russell M. McIntire

SENIOR LECTURER Andrew Sucre

LECTURERS Alyssa Lowery, Lyn Radke, Brandon Underwood

COURSES OFFERED: PHIL

The Department of Philosophy at Vanderbilt offers a wide range of courses relating philosophy to various dimensions of human concern.

The department emphasizes three broad areas of scholarly and teaching excellence: ethics, social and political philosophy, and the history of philosophy.

Program of Concentration in Philosophy

The program of concentration should be tailored to the needs and interests of the student. The following distribution of courses is required as part of the major. Logic: 1003 or 3003 (at least 3 credit hours); Ethics: 1005, 3605, 3606, or 3606W (at least 3 credit hours); History of Philosophy: 2100, 2101, 2102, 2103, or 2104 (at least 6 credit hours). Any alterations must be approved by the director of undergraduate studies. We encourage all majors to work closely with their advisers to select courses that form a coherent whole. The student must take at least 30 credit hours in the major field of which at least 21 credit hours must be in courses beyond the 1000 level.

Honors Program

The Honors Program offers opportunities for advanced study in philosophy, including independent research projects and/or enrollment in certain graduate seminars (with permission of the instructor). To be admitted to the program, the student must: (a) be a major in philosophy; (b) have a grade point average of 3.3 in all courses; (c) have a 3.5 grade point average in philosophy courses; and (d) develop a written proposal for advanced study in consultation with a philosophy faculty sponsor. Students who satisfy these requirements should meet with the director of undergraduate studies to review their programs, whereupon the director may nominate the students for honors work. Honors work typically begins in the junior year or in the first semester of the senior year; students in the program must complete at least 3 credit hours of Philosophy 3999. Students who successfully complete the program while maintaining the grade point averages of 3.3 generally, and 3.5 in the major, will receive honors in philosophy; students who do especially distinguished work will receive highest honors.

Minor in Philosophy

The minor in philosophy consists of 18 credit hours, including at least 12 credit hours in courses beyond the 1000 level. The minor program will be constructed so as to provide a broad grounding in philosophy and to complement the student's other studies. Each program must be approved by the director of undergraduate studies.

Note: 1002 or 1002W or 1005 or 1111 are ordinarily taken prior to all other philosophy courses, except 1003 and 3003 (logic courses), 3616 (philosophy of science), and 3013 (aesthetics).

Physics and Astronomy

CHAIR Julia Velkovska

VICE CHAIR Kalman Varga

DIRECTOR OF UNDERGRADUATE STUDIES Robert Scherrer

DIRECTOR OF GRADUATE STUDIES (Physics) Alfredo Gurralo

DIRECTOR OF GRADUATE STUDIES (Astrophysics) Jonathan Bird

PROFESSORS EMERITI John Paul Barach, Charles A. Brau, Leonard C. Feldman, Dennis Hall, Arnold M. Heiser, P. Galen Lenhert, Charles F. Maguire, Volker E. Oberacker, Akunuri V. Ramayya, Medford S. Webster, Thomas J. Weiler, Robert A. Weller

PROFESSORS Andreas Berlind, David J. Ernst, John C. Gore, Senta V. Greene, Richard F. Haglund Jr., Joseph H. Hamilton, Kelly Holley-Bockelmann, M. Shane Hutson, Will E. Johns, Thomas W. Kephart, Sokrates T. Pantelides, James A. Patton, Robert J. Scherrer, Paul D. Sheldon, Keivan G. Stassun, Norman H. Tolk, A. Sait Umar, Kalman Varga, Julia Velkovska, David A. Weintraub, John P. Wikswo Jr.

DISTINGUISHED RESEARCH PROFESSOR C. Robert O'Dell

ASSOCIATE PROFESSORS Steven E. Csorna, Todd E. Peterson, Jason Valentine, Yaqiong Xu

ASSISTANT PROFESSORS Alfredo Gurrola, William R. Holmes, Jessie C. Runnoe, Stephen R. Taylor

ADJUNCT ASSISTANT PROFESSOR Susan G. Stewart

SENIOR LECTURERS Sourish Dutta, Erika Grundstrom, Savanna Starko, Momchil Velkovsky

LECTURER William Teets

COURSES OFFERED: ASTR, PHYS

As fundamental sciences, physics and astronomy continue to be driving intellectual forces in expanding our understanding of the universe, in discovering the scientific basis for new technologies, and in applying these technologies to research. In keeping with this crucial role, the Department of Physics and Astronomy offers courses dealing with both the cultural and intellectual aspects of the disciplines, a broadly based major program flexible enough to serve as preparation for graduate study in physics, applied physics, medical physics, astronomy or astrophysics, professional study in another area, or technical employment, and minor programs for students desiring to combine physics or astronomy with other majors. An honors program is available for qualified departmental majors.

A distinguishing feature of the Vanderbilt undergraduate curriculum is the close coupling between teaching and research. At Vanderbilt, active research groups are studying the physics of elementary particles; nuclear structure and heavy-ion reactions; nonlinear interactions of lasers with materials at ultrafast time scales; the behavior of electrons, atoms, molecules, and photons near surfaces; the electric and magnetic properties of living systems; the structure and dynamics of biopolymers; young stars; and cosmology. All professors are engaged in research, and undergraduate students can participate in this research informally or through independent study or summer work.

The Society of Physics Students arranges informal discussions.

Program of Concentration in Physics

The departmental major provides a thorough grounding in the core areas of physics. It is suitable either as preparation for careers in science and engineering or as a springboard for applying technical knowledge in such fields as business, medicine, law, public policy, and education. The major in the Department of Physics and Astronomy consists of 31–32 credit hours of course work, distributed as below. Students considering majoring in physics are strongly encouraged to consult with the director of undergraduate studies before registering for classes.

1. *Core courses covering the major subdisciplines of physics* — Students must complete four of the following (12 credit hours): Modern Physics and the Quantum World (2255); Classical Mechanics (2275); Electricity, Magnetism, and Electrodynamics I (2290); Statistical Physics (3200); Quantum Mechanics I (3651).
2. *Laboratory work* — Students may not use AP credit to satisfy any portion of the laboratory sequence requirement (3–4 credit hours):
    a. Laboratory Principles I (1912L), Laboratory Principles II (2255L), and Introduction to Experimental Research (2953L); or
    b. 1501L or 1601L, 1502L or 1602L, 2255L, and 2953L if the student has entered the major by taking the

introductory physics course sequence 1501 or 1601, 1501L or 1601L, 1502 or 1602, and 1502L or 1602L. Students considering majoring in physics who begin in 1501 or 1601 and 1501L or 1601L in the fall semester are encouraged to take the combination 1502 + 1912L or 1602 + 1912L in the spring semester.

3. *Electives* (9 credit hours) — Pedagogical course work in physics and/or astronomy; research hours (3850, 3851, 4998) do not count toward this requirement. The course electives may be taken from any 2000-level or higher PHYS or ASTR courses not used to satisfy any other requirement of the major. Other courses may count as electives, such as courses offered by the engineering school (or other departments and schools) that are particularly relevant, such as a course in environmental studies, health physics, optics, or materials science. Such exceptions must be approved by the director of undergraduate studies.
4. *Capstone* (7 credit hours) — Computational Physics (3790), 3 credit hours of research (3850, 3851, or 4998) taken across one or more semesters, and the Seminar in Presenting Physics Research (3600). Physics-related research done in other departments and programs, supervised by Vanderbilt faculty and pre-approved by the director of undergraduate studies, is also permitted in satisfaction of the research requirement.

Immersion Experience: A student majoring in physics may choose to complete their Immersion Experience through an enhanced research program within the disciplines of either physics or astronomy. To complete the Immersion Experience in physics or in astronomy, physics majors must complete at least 5 credit hours of research and earn 1 credit hour from PHYS 3600 (Seminar in Presenting Physics Research) and 3 credit hours from PHYS 3790 (Computational Physics). At least 2 of these credit hours in research must be earned in either 3851 (Undergraduate Immersion Research) or 4998 (Honors Research). The other three (3) credit hours may be from any combination of 3850, 3851, and 4998. Credit hours in research may be from PHYS, from ASTR, or from a combination of PHYS and ASTR courses.

Computer Science course work: All 2000-level and higher PHYS courses assume students have working skills in programming. These skills may be learned outside of a regular course, but should be equivalent to that taught in CS 1104 Programming and Problem Solving. Students who do not already have these skills are strongly advised to take this class in the first semester, prior to beginning the three-semester laboratory sequence in the second semester. In addition, the following Computer Science and/or Scientific Computing courses are strongly recommended for all physics majors: Program Design and Data Structures (CS 2201) or Program Design and Data Structures for Scientific Computing (CS 2204); Algorithms (CS 3250) or Scientific Computing Toolbox (SC 3250); and High Performance Computing (SC 3260). Physics majors pursuing a second major or minor in computer science should take CS 2201; physics majors pursuing a minor in scientific computing should take CS 2204.

Mathematics course work: All physics majors are expected to have high-level skills in mathematics in order to be successful in PHYS classes and to prepare for graduate work. MATH courses are not formally required for the major in physics; however, most physics courses identify MATH prerequisite or co-requisite courses in order to indicate the mathematical skill-level assumed for that class. Multivariable calculus is a co-requisite for 2255 and a prerequisite for all other 2000-level or higher PHYS courses. Physics majors are expected to develop a working knowledge of single-variable calculus, multivariable calculus, and ordinary differential equations. The following courses are those strongly recommended for physics majors:

1. Accelerated Calculus I (1300) and Accelerated Calculus II (1301);
2. Multivariable Calculus (2300) or Multivariable Calculus and Linear Algebra (2500 and 2501); and
3. Methods of Ordinary Differential Equations (2420) or Ordinary Differential Equations (2610).

In addition, for physics majors considering post-graduate work in physics or in a related field, the following PHYS and MATH courses are strongly recommended as electives:

1. Electricity, Magnetism, and Electrodynamics II (PHYS 2291), Quantum Mechanics II (PHYS 3652), Mathematical Methods of Physics (PHYS 4005); and
2. Methods of Linear Algebra (MATH 2410) or Linear Algebra (MATH 2600); Introduction to Probability and Mathematical Statistics (MATH 2820); Statistics Laboratory (MATH 2820L); Complex Variables (MATH 3110); Introduction to Partial Differential Equations (MATH 3120); Fourier Analysis (MATH 3130); and Advanced Engineering Mathematics (MATH 3600).

Licensure for Teaching

Candidates for teacher licensure in physics at the secondary level may qualify by taking the basic physics major together with the requisite education courses described in the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Honors Program

The Honors Program in the Department of Physics and Astronomy is designed to allow a student to engage in advanced research under the guidance of a faculty member, usually in an area related to an ongoing research program in the department. A student majoring in physics interested in Honors (Honors in Physics or Honors in Astronomy) will work with a faculty mentor to develop an appropriate research project that will be conducted under the guidance of that faculty member. The Honors project must have a substantial grounding in physics or astronomy, but may be conducted under the direct supervision of any faculty member in any department at Vanderbilt. To be admitted to the Honors Program, a student must submit a two-page research proposal describing the plans for their Honors project, which must be approved by the director of the departmental Honors Program. In addition, a student must have completed 2953L, either 2255 or 3651, and meet the minimum GPA requirements for honors programs of the College of Arts and Science.

To graduate with honors, a student must

- Have at least a 300 cumulative GPA and a 3.300 GPA in courses that count toward the major.
- Earn a minimum of 6 credit hours in research classes (3850, 3851, 4998), leading to an honors thesis, with at least 2 of these credit hours earned in A student who earns credit for 3852 may satisfy this portion of the requirement with 3 credit hours of research earned at Vanderbilt, including at least 2 of these credit hours in 4998.
- Write a senior thesis of high merit, as evaluated by the student's Honors Examination Committee; the thesis may be submitted either in the fall or spring semester of the senior year.
- Demonstrate high attainment on an oral honors examination in which they present and defend their work to the student's Honors Examination Committee; the oral examination may take place either in the fall or spring semester of the senior year.

Departmental Minors

The physics and astronomy minors are suitable for students who wish to supplement a related discipline or simply have a general interest in the field. Research is not a requirement for either minor.

Minor in Physics

The minor requires a minimum of 19 credit hours of course work, distributed as follows:

Any first-semester physics class (1501, 1601, 1911, 2051)	3-4
Any first-semester physics laboratory (1501L, 1601L, 1912L, 2052)	1
Any second-semester physics class (1502, 1602, 1912, 2053)	3-4
Any second-semester physics laboratory (1502L, 1602L, 2255L, 2054)	1
PHYS 2255 or 3651	3
6 credit hours of electives. These may be selected from any 2000-level or higher-level PHYS courses not used to satisfy the above requirements or from 3 credit hour non-PHYS courses, the latter if approved by the director of undergraduate studies, and may include up to 3 credit hours of research (3850, 3851, 4998).	6
Total credit hours:	17-19

Minor in Astronomy

The minor requires a minimum of 16 credit hours of course work, distributed as follows:

ASTR 1010 and either 1010L or 1020L; or 1210	4
ASTR 2110	3
ASTR 3000	3
Two other astronomy courses, one of which may be a 3 credit hour one-semester research project (3850, 3851, 4998). Note that only physics majors pursuing honors in astronomy are eligible to enroll in 4998.	6
Total credit hours:	16

Introductory Courses - Physics

1001, 1010, 1020,1010L, 1111, 1501, 1501L, 1502, 1502L, 1601, 1601L, 1602, 1602L, 1911, 1912, 1912L, 2255L

Introductory, calculus-based physics is offered at several different levels, each with the appropriate laboratory. Only one of 1501/1601/1911 and one of 1502/1602/1912 may be taken for credit. Physics 1501–1502/1601L–1602L is intended for students in the health sciences. Physics 1601–1602/1601L–1602L is intended for students in engineering. Physics 1911–1912 and the labs 1912L-2255L are intended for students planning to major in physics or pursue research-oriented careers in science, engineering, or mathematics; however, students may major in physics after starting in any of these three introductory physics sequences. Prospective majors are strongly advised to begin their study of physics in the fall semester of their freshman year whenever possible, although with careful planning it is possible to complete the physics major with a later start. Physics 1010 /1020 is intended for students without strong backgrounds in mathematics or science who have a general interest in the subject. 1010/1020 is not recommended as preparation for further study in a natural science, is not appropriate for engineering, premedical, or pre-dental students, and does not count toward the physics major or minor.

Intermediate Courses - Physics

2210, 2255, 2275, 2290, 2660, 2953L, 3122, 3200, 3600

The intermediate-level courses cover the major subdisciplines of classical and modern physics.

Advanced Courses - Physics

2291, 3640, 3651, 3652, 3660, 3790, 3850, 3851, 3890, 4998

These courses are intended for physics majors in their junior and senior year and provide material supporting independent study or honors projects in physics.

Medical and Health Physics Courses

3125, 3645

Physics Education Courses

3820

Introductory Courses - Astronomy

1001, 1010, 1010L, 1020L, 1111, 1210

Intermediate Courses - Astronomy

2110, 2130, 2150, 3000

Advanced Courses - Astronomy

3600, 3700, 3800, 3850, 3851, 3900, 4998

Political Science

Program of Concentration in Political Science

Honors Program

Minors in Political Science

Licensure for Teaching

CHAIR Alan E. Wiseman

VICE CHAIR Jonathan T. Hiskey

DIRECTOR OF UNDERGRADUATE STUDIES Jonathan T. Hiskey

DIRECTOR OF GRADUATE STUDIES Sharece Thrower

PROFESSORS EMERITI W. James Booth, Bruce I. Oppenheimer, Richard A. Pride, James Lee Ray, Mitchell A. Seligson, Nicholas S. Zeppos

VISITING DISTINGUISHED PROFESSOR Jon Meacham

PROFESSORS Brooke A. Ackerly, Larry M. Bartels, Robert Barsky, Joshua D. Clinton, Daniel Cornfield, Daniel Diermeier, John G. Geer, Tracey George, Jason Grissom, Jonathan T. Hiskey, Sarah Igo, Cindy D. Kam, David E. Lewis, Michael A. Newton, Matthias Polborn, Edward Rubin, Thomas Schwartz, John Sides, Robert Talisse, Jessica Troutstine Alan E. Wiseman, Elizabeth J. Zechmeister

PROFESSOR OF THE PRACTICE Michael Newton

ASSOCIATE PROFESSORS Brett V. Benson, Katherine B. Carroll, Brenton Kenkel, Jennifer M. Larson, Noam Lupu, Emily Hencken Ritter, Sharece Thrower, Shatema Threadcraft

ASSISTANT PROFESSORS Allison Anoll, Abhit Bhandari, Peter Bils, Andrew J. Coe, John Dearborn, Alex Dubilet, Cassy Dorff, J. Andrés Gannon, Christopher Li, Jorge Mangonnet, Nina McMurry, Leah Rosenstiel, Peter Schram, Bradley C. Smith, Georgiy Syunyaev, Roya Talibova, Maria (Masha) Titova, Erin York

RESEARCH PROFESSORS Samar S. Ali

RESEARCH ASSISTANT PROFESSORS Eli Merritt, J. Gray Sasser

PRINCIPAL SENIOR LECTURERS Carrie A. Russell

COURSES OFFERED: PSCI

The Department of Political Science is oriented toward both teaching and research and has multiple missions. First, it offers a balanced curriculum for undergraduates and graduate students to study the art and science of politics. Second, it offers training for students preparing to become professionals in political science and other fields. Third, it exists as a research faculty seeking new knowledge about government and politics.

Many members of the faculty have national and international reputations in their fields of scholarship. These research and teaching interests vary widely, from political leadership to the comparison of new and old democratic governments, issues of political economy, and ethical questions about politics.

Political science majors may participate in independent study, directed study, selected topics seminars, first-year seminars, the Honors Program, and internships. Average class size is close to thirty—small classes make personal contact with the faculty relatively easy. Students participate in the governance of the department through the Undergraduate Political Science Association, and may qualify for membership in Pi Sigma Alpha, the national political science honorary society.

Program of Concentration in Political Science

Students majoring in political science are required to complete a minimum of 30 credit hours of work, distributed as follows:

Major Concentration	Hours
Political Science Core 1100, 1101, 1102, 1103, or 1150	6
Political Science Subfields	12 (3 hours from 4 different subfields)
**American Government and Politics subfield* (2204W, 2222, 2235, 2240, 2240W, 2241, 2242W, 2243, 2244, 2245, 2251, 2253, 2255, 2256, 2259, 2262, 2265, 2266, 2267, 2270, 3241, 3242, 3244, 3246, 3247, 3249, 3250, 3252, 3253, 3254, 3260, 3268, 3700W, 3893, 4444)	
**Comparative Politics subfields* (2210, 2212W, 2213, 2214, 2215, 2216, 2217, 2219, 2223, 2224W, 2228W, 2230, 2231, 2236, 2237, 2238, 2239, 2246W, 2249, 2251, 2252, 2554W, 2270, 2278, 2400W, 2405W, 3211, 3217, 3218, 3219, 3228, 3235, 3272W, 3273, 3273W, 3274, 3400, 3894, 4238)	
**International Relations subfield* (2170, 2171, 2211, 2220, 2221, 2222, 2223, 2225, 2226, 2236, 2263, 2270, 2273, 2274, 2275, 2405W, 3211, 3228, 3229, 3272W, 3273, 3273W, 3275, 3895, 4277)	
**Political Theory subfield* (2201, 2202, 2203, 2204W, 2205, 2207, 2207W, 2208, 2209, 2263, 3206, 3253, 3258, 3264W, 3265, 3266, 3270, 3271, 3333, 3896, 4257)	
**Research Methods subfield* (2170, 2171, 2259, 2270, 2279, 2300, 2310, 3273, 3273W)	
Electives (Any 2000, 3000, or 4000-level course listed above; 2270, 2279, 2300, 2130, 3891, 3897; one additional 1100-level course, including 1111; up to 6 credit hours of 3841, 3842, 3851, 3852, 3880, 3882, 3882, 3883, 4998, 4999 *combined)*	12
Minimum 30 credit hours total	

In order to graduate with a political science major, students must take a brief exam within the major concentration in which they are most interested during their senior year. Students are to take this exam online in the fall or spring of their senior year. The exam is not graded, and no grade will appear on the student's transcript. The purpose of the exam is to ascertain the extent to which political science majors are retaining core aspects of the political science curriculum.

Students desiring an emphasis on African American politics within their program of concentration should consider courses in the following group: 2240, 2255, 2265, 2266. They may also choose to elect the following courses at Fisk University: Political Science 245 (Afro-American Political Thought), 254 (Politics in the Black Community), and 406 (African Political Systems).

Graduate Courses. Qualified undergraduates may enroll in graduate courses with the consent of their adviser, the course instructor, and the Graduate School. To enroll in graduate courses, undergraduate applicants need to comply with rules provided under the heading Undergraduate Enrollment in Graduate Courses in this catalog.

Honors Program

To enter the Honors Program, students should have completed all but 6 credit hours of the AXLE requirements, and have a minimum overall GPA of 3.6. They should also have a minimum GPA of 3.6 in all the political science courses they have taken up to the point at which they enter the Honors Program. They must have exhibited to the department additional evidence of an ability to do independent work. Finally, they must be nominated by the director of the undergraduate studies program.

In addition to requirements set by the College of Arts and Science, the following requirements must be met in order for honors in political science to be awarded:

1. 30 credit hours in political science, as well as all of the requirements for political science majors.
2. 3.6 grade point average in all political science courses, and a 3.6 average in courses that count toward honors in political science.
3. Completion of an honors thesis under the direction of a faculty adviser. Students will enroll in Senior Honors Research (4998 and 4999) during the semesters when they work on the honors thesis (at least 3 credit hours each).
4. An oral defense of the honors thesis in the last semester of the senior year.

Students in the Honors Program are encouraged to take PSCI 2270 before they enter or during their first semester in the Honors Program.

Students will complete the thesis under the direction of a faculty adviser. Instructions for applying to the Honors Program can be found on the Political Science webpage. The student will complete the oral defense in the department, after which it will also be determined whether the student will receive honors or highest honors. *Successful candidates are awarded honors or highest honors in their field and this designation appears in the Commencement program and on their diplomas.*

Minors in Political Science

The Department of Political Science offers three minor concentrations, which are detailed below. Each consists of 18 credit hours (one introductory-level course and five upper-level courses). One of these options may be chosen:

Minor Concentration	Hours
American Politics 1100 or 1150	3
Any five of the following: 2204W, 2222, 2240, 2240W, 2241, 2242W, 2243, 2244, 2245, 2251, 2253, 2255, 2256, 2259, 2262, 2265, 2266, 2267, 2270, 3241, 3244, 3246, 3247, 3249, 3250, 3252, 3253, 3254, 3260, 3268, 3700W, 3893, 4444	15
Political Theory 1103	3
Any five of the following: 2201, 2202, 2203, 2204W, 2205, 2207, 2207W, 2208, 2209, 2263, 3206, 3253, 3258, 3264W, 3265, 3266, 3270, 3271, 3333, 3896, 4257	15
World Politics A student may stress comparative politics or international relations or may mix the two in this minor. 1101 or 1102	3
Any five of the following: 2170, 2171, 2210, 2211, 2212W, 2213, 2214, 2215, 2216, 2217, 2219, 2220, 2221, 2222, 2223, 2224W, 2225, 2226, 2228W, 2230, 2231, 2236, 2237, 2238, 2239, 2246W, 2249, 2251, 2252, 2254W, 2263, 2270, 2273, 2274, 2275, 2278, 2400W, 2405W, 3211, 3217, 3218, 3219, 3228, 3229, 3235, 3272W, 3273, 3273W, 3274, 3475, 3400, 3894, 3895, 4238, 4277	15

Licensure for Teaching

Candidates for teacher licensure in political science at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Psychology

Programs of Concentration in Psychology

Honors Program

Comprehensive Exam

Minor in Psychology

CHAIR Thomas J. Palmeri

DIRECTOR OF UNDERGRADUATE STUDIES Adriane E. Seiffert

DIRECTOR OF GRADUATE STUDIES René Marois

DIRECTOR OF CLINICAL TRAINING Bunmi O. Olatunji

PROFESSORS EMERITI Thomas Burish, William F. Caul, Keith N. Clayton, Ford F. Ebner, Jeffery J. Franks, Joseph S. Lappin, Richard C. McCarty, William P. Smith, Andrew J. Tomarken

PROFESSORS Randolph Blake, Isabel Gauthier, Steven D. Hollon, Jon H. Kaas, Gordon D. Logan, René Marois, Timothy P. McNamara, Bunmi O. Olatunji, Thomas J. Palmeri, Sohee Park, Frank Tong, Mark Wallace, Thilo Womelsdorf, Geoffrey Woodman

ASSOCIATE PROFESSORS Jo-Anne Bachorowski, Suzana Herculano-Houzel, Kari Hoffman, Alexander Maier, Sean Polyn, David G. Schlundt

ASSISTANT PROFESSORS André Bastos, Antonia Kaczkurkin, Jonathan Schaefer, Ashley Watts

PRINCIPAL SENIOR LECTURER Adriane E. Seiffert

SENIOR LECTURERS Ashleigh M. Maxcey, Elisabeth H. Sandberg

COURSES OFFERED: PSY

Psychology is the scientific study of brain, behavior, and cognitive processes. At Vanderbilt, the undergraduate program introduces students to the major areas of contemporary psychology: clinical science, human cognition and cognitive neuroscience, developmental psychology, neuroscience, and social psychology. Clinical science studies human personality, emotion, abnormal behavior, and therapeutic treatments. Human cognition and cognitive neuroscience are the study of processes such as learning, remembering, perceiving objects and events, and neural mechanisms underlying these processes. Developmental psychology examines human development from conception through adulthood, including cognitive, emotional, physical, and social aspects. Neuroscience studies the structure and function of the brain and how nerve cells process sensory information, mediate decisions, and control motor actions. Social psychology examines interpersonal and intergroup relations and the influence of social conditions on cognitive, emotional, and behavioral processes.

The Department of Psychology offers a general program of study for students who desire a broad background in contemporary psychology, as well as an honors program. The department offers a wide variety of opportunities for undergraduates to gain research experience through active participation in faculty research projects. Such research experience is considered a fundamental aspect of education in psychological science.

Programs of Concentration in Psychology

General Program

PSY 1200

PSY 2100 or PSY-PC 2110 (Peabody)

PSY 2150

4 Distribution Courses*

5 Psychology Electives**

Total credit hours: 36

Honors Program

PSY 1200

PSY 2100 or PSY-PC 2110 (Peabody)

PSY 2150

4 Distribution Courses*

2 or all 3 of PSY 3980, 3981, and 4998

PSY 4999

3 Psychology Electives

Students who only take two semesters of PSY 3980, 3981, and 4998 will need to take an additional elective course to fulfill their 42 credit hours.

Total credit hours: 42

Honors Program

The Honors Program offers qualified majors the opportunity to conduct research projects in collaboration with faculty members. This research culminates in the writing and public presentation of a senior thesis.

The Honors Program offers unusual opportunities for interested and qualified students, including special seminars and individual research projects. The program should substantially aid those intending to do graduate work.

The program requires three or four semesters of honors research and participation in the Honors Seminars, which are PSY 3980, 3981, 4998, and 4999. (Students must have at least 9 credit hours total, with mandatory enrollment in PSY 4999). Students may enroll in the three-semester options of the Honors Program—provided they can complete the research project by extra work during three regular semesters and/or a summer, and provided this arrangement is acceptable to the faculty mentor and to the director of the Honors Program. Students who take the three-semester option will need to take an additional PSY elective course to fulfill their 42 credit hours.

Students who are majoring in psychology should apply to the Honors Program at the end of their sophomore year.

Applicants are required to have a cumulative grade point average of at least 3.3, both overall and in all courses that count toward the psychology major. Students must also find a faculty mentor who is willing to sponsor them in the program. Students who intend to apply the three-semester option should identify a faculty mentor and obtain permission for the option at the end of their sophomore year, but are not required to apply to the program until the end of the first term of their junior year. Students who complete the program successfully and have a final cumulative and major grade point average of 3.3 or higher will receive honors or highest honors in psychology.

*Distribution Courses

(at least 4 of the following 6 courses are required)

The following courses provide grounding in core content areas of psychological science.

PSY 3100, 3110, 3120, 3750; NSC 2201; PSY-PC 1250 (Peabody)

** Electives

Any course in the Department of Psychology (A&S) or the Department of Psychology and Human Development (Peabody) that is not being used to meet another psychology requirement can be used as an elective, unless otherwise stated in the course catalog.

Comprehensive Exam

In order to graduate with a psychology major, students must take a comprehensive exam during their senior year. Students are expected to take the comprehensive exam at the beginning of their last semester, typically spring semester of their senior year. The exam is not graded, and no grade will appear on the student's transcript. The purpose of the exam is to assess the extent to which psychology majors are retaining core aspects of the psychology curriculum.

Minor in Psychology

The minor in psychology is intended for those students who want to gain an overview of the science of psychology and its methodological foundations, and to sample more advanced work in the areas of specialization within psychology at Vanderbilt.

Students are required to complete 18 credit hours of course work inside the department, distributed as follows:

PSY 1200

PSY 2100 or PSY-PC 2110 (Peabody)

PSY 2150

2 courses from the list of Distribution Courses specified for the major

1 Psychology Elective as defined in the psychology major

Total credit hours: 18

Independent/Directed Study courses (3850 and 3840/3860) may not be counted as the elective course for minors.

1200 (or 1111, sections 1, 2, and 3) is prerequisite for all other psychology courses except 1111. PSY 1111 – 01, 02, 03 – General Psychology, First-Year Writing Seminar – covers the same material as PSY 1200 and also serves as the introductory prerequisite for all 2000-level courses in psychology. Credit cannot be earned for both PSY 1200 and PSY 1111 – 01, 02, or 03. PSY 1111– sections 4 and higher – are First-Year Writing Seminars on special topics in psychology. PSY1111 – sections 4 and higher – do not replace PSY 1200 as a prerequisite for all 2000-level courses in psychology and may be taken in conjunction with PSY 1200.

Note: NSC courses 2201 (Neuroscience), 3235 (Biological Basis of Mental Disorders), 3269 (Developmental Neuroscience), 3270 (Computational Neuroscience), 3272 (Structure and Function of the Cerebral Cortex), and 3274 (Neuroanatomy) count as courses in the Department of Psychology (A&S). See the Neuroscience course listings for descriptions of these classes.

Public Policy Studies

Program of Concentration in Public Policy Studies

Honors Track

DIRECTOR Gilbert Gonzales (Medicine, Health, and Society)

ASSOCIATE DIRECTOR Katherine Carroll (Political Science)

PROFESSOR Christopher Carpenter (Economics)

ASSOCIATE PROFESSOR Gilbert Gonzales (Medicine, Health, and Society)

ASSISTANT PROFESSORS Kirsty Clark (Medicine, Health, and Society), Patrick Greiner (Sociology), Analisa Packham (Economics)

ADJUNCT PROFESSOR Bill Purcell

LECTURER Mario Rewers (American Studies)

COURSES OFFERED: PPS

Program of Concentration in Public Policy Studies

The public policy studies major has two components: the core curriculum and areas of concentration, and an optional honors program for those who qualify. Students are also required to complete several prerequisites to prepare them for the major. Students may not double count any single course for both a required part of the core and for an elective.

The proposed core is interdisciplinary and includes rigorous course work drawn from political science, economics, sociology, anthropology, and history. The core provides all PPS students training in the politics, economics, methods, social contexts, history, and ethics of public policy.

In addition to developing skills in the core curriculum, PPS students seek more intensive training within areas of concentration. The boundaries of these areas are not mutually exclusive, and together they span a wide range of policy concerns and disciplinary perspectives. Among the five elective courses, students must take three courses in a single area of concentration. It is also recommended that students choose electives from at least two disciplines.

Students pursuing the “economic policy” concentration must take at least two upper-level electives in economics from the list (numbered above 3000).

Prerequisites

PPS majors must have earned credit for MATH 1201 or 1301, or higher; basic statistics (ECON 1500 or 1510 or both MATH 2820L and either 2810 or 2820); and introductory courses in political science and economics (PSCI 1100, ECON 1010, and ECON 1020).

Core Curriculum (5 courses, 15 credit hours)

PSCI 2256 or PPS 2100	3 credit hours
ECON 3010, 3012, 3020, or 3022	3 credit hours
ECON 3032, 3035, 3050; SOC 3002; or HOD 2500	3 credit hours
PPS 2200 and 2250	6 credit hours

If a student cannot take both 2200 and 2250, they may, with prior approval from the director or associate director of Public Policy Studies, substitute one course from ANTH 3122, 3133, 4152; HIST 2722; PSCI 3253; SOC 3315, 3604, 3605, 3613, 3614.

Electives and Areas of Concentration (5 courses, 15 credit hours)

The track is intended to allow students to go more deeply into one area of public policy (for example: health policy, STEM policy, education policy, criminal justice policy). Each student is free to choose and design his or her own track with the advice and approval of the program director. Classes should generally be upper-level and should represent at least two disciplines.

General Electives

The following courses may count as PPS general electives, but they do not count toward the three electives (9 credit hours) that must be taken within a single area of concentration: PSCI 2240, 2245, 2253, 3241, 3244.

Areas of Concentration

Advanced Quantitative Methods for Public Policy

PPS 3200 or 3250; ANTH 3261; ECON 4050; HOD 3200; PSCI 2300

Economic Policy

ECON 2150, 3150, 3200, 3230, 3250, 3700, 4110, 4210, 4510/4510W, 4530/4530W; HIST 1640, 1660; HODE 3225; PSCI 2223, 3252

Social Policy

ECON 3100, 3110, 3350; HIST 1440, 1665, 2690, 2740, 2810, 3040, 3045W; MHS 2110, 3020, 3220, 3030, 3320; SOC 3223, 3304, 3611, 3616, 3621, 3622, 3701, 3711; UNIV 3320, 3325

Environmental, Resource, and Energy Policy

ANTH 2109, 2150, 3134; ECON 2170; SOC 3311, 3312, 3314, 3315, 3316, 3317, 3318

International and Foreign Policy

AMER 3200; ASIA 2560; ECON 2220, 3600, 3610, 3650, 4520; GSS (formerly WGS) 3201, 3281; HIST 1690, 1691, 1730, 1740, 2457, 2535, 2700, 2710, 2721, 2722, 2735, 2740; JS 2540; MHS 2410, 2420, 3110; PSCI 2220, 2222, 2225, 2236, 2251, 3229, 3272W, 3275

Science, Technology, and Innovation Policy

CMST 2850, 2950; CSET 3090, 3100; ECON 3270; HIST 2780, 3050, 3070W; MHS 3120; PHIL 1008, 3608; SOC 3206

Honors Track (2 additional courses, 6 additional hours)

Students who have a GPA of 3.30 or higher for all previous courses taken for credit and a GPA of 3.50 for all courses counting toward the PPS major may apply for the honors track in PPS. Students normally apply for the honors track during the second semester of their junior year. By the end of the junior year, students interested in pursuing honors should have completed all of the required core courses in the PPS major. The PPS program director may make exceptions.

Those accepted into the honors track enroll in PPS 4980 and 4999 (3 credit hours each) during the fall or spring semesters of their senior year. In addition to the honors seminar, each honors student has a faculty adviser to provide guidance on the research project and to chair the thesis committee. Successful completion of the honors program entails both the production of an original written thesis and an oral exam on the thesis project. The thesis committee evaluates both the written thesis and oral exam.

Religious Studies

Program of Concentration in Religious Studies

Honors in Religious Studies

Minor in Religious Studies

Minor in Islamic Studies

Minor in Arabic Language

CHAIR Richard McGregor

DIRECTOR OF UNDERGRADUATE STUDIES IN RELIGIOUS STUDIES Issam Eido

DIRECTOR OF UNDERGRADUATE STUDIES IN ISLAMIC STUDIES Issam Eido

DIRECTOR OF UNDERGRADUATE STUDIES IN ARABIC Issam Eido

DIRECTOR OF GRADUATE STUDIES James Byrd (Divinity)

CHAIR, GRADUATE DEPARTMENT OF RELIGION James Hudnut-Beumler (Divinity)

PROFESSORS EMERITI Lewis V. Baldwin, Volney P. Gay, Charles H. Hambrick, Daniel M. Patte, Tony K. Stewart

PROFESSORS Richard McGregor, Laurel Schneider

ASSOCIATE PROFESSOR Anand Taneja

ASSISTANT PROFESSORS Adeana McNicholl, Calynn Dowler, Ira Helderman, Issam Eido

SENIOR LECTURERS Bushra Hamad

COURSES OFFERED: ARA, RLST

Religious Studies is the critical, academic investigation of diverse spiritual traditions. Religion has always been active in human affairs for good and for ill, encompassing histories, literatures, politics, cosmologies, and medicines. Understanding the diversity of religious traditions on their own terms is vital for accuracy in approaching the world's many challenges. The faculty of Vanderbilt's Religious Studies Department and our many affiliated faculty across the university provide expertise and research in a variety of religious traditions. In addition to our expertise in specific religious cultures, texts, practices, rituals, and histories, we also share research interests and teaching focus on the religious dimensions of race and caste, colonialism, gender and sexuality, health and healing, and the climate crisis.

Students majoring in religious studies gain a deep knowledge of a single tradition, region, or theme and a broad understanding of religions around the world. Successful students develop a highly portable analytical skill set that equips them to pursue graduate degrees in religion or cognate disciplines, as well as professional degrees and careers in fields such as law, diplomacy, medicine, and business. It also provides an excellent second major for a variety of disciplines that address the human condition including neuroscience; sociology; history; medicine, health, and society; and others. Majors will gain the ability to reason intelligently about one of the most difficult and sensitive topics in any society. By virtue of the variety of religious cultures studied, the training will deepen students’ mutual understanding and sensitivity to prepare them to become truly responsible global citizens.

The department offers a major (31 credit hours), an Honors Program, a minor (18 credit hours) in religious studies, a minor (20 credit hours) in Islamic studies, and a minor in Arabic language (18 credit hours). A student may pursue both the minor in Islamic studies and the minor in Arabic language.

Program of Concentration in Religious Studies

31 credit hours. The program of concentration in religious studies seeks to introduce students to the rich diversity of religious traditions in the world (*Breadth* component) and to build depth of study in areas of specific interest to the student (*Depth* component). In addition, the curriculum includes instruction in the range of theories and methods used to approach religious traditions academically (*Tools of the Discipline* component). The student will then be able to pursue individual interests (*electives*).

A maximum of two courses (6 credit hours) outside of the department may count toward the major. Of these, one course (3 credit hours) outside of the department may count toward the Depth Component. A foreign language course approved as an elective is *not* subject to the two-course (6 credit hours) limit. No course may be used to satisfy more than one of the four components of the major.

1. *Breadth Component* (9 credit hours)

Ensures a familiarity with the rich diversity of religious traditions in the world.

a. ***Encountering religious diversity.*** *3 credit hours.* RLST 1010. An introduction to the field of religious studies and select traditions.
b. **Introductory course in African or Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in the Mediterranean, Middle East, Africa, or the Americas (including but not limited to Judaism, Christianity, Islam, Egyptian religions, traditions of Sub- Saharan Africa, Native American traditions). RLST 1100, 1200, 1208, 1309, 1500. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

c. **Introductory course in Asian or non-Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in Asia or the Pacific (including but not limited to Hindu and Buddhist traditions and those religious traditions originating in East and South Asia). RLST 1637, 1700, 1710, 2644, 2664. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

2. *Depth Component* (9 credit hours)

The Depth Component is organized according to three tracks: *traditions, geographies,* and *theories and themes.* The introductory course taken to satisfy the breadth requirement cannot be double-counted in this category. The student must choose 9 credit hours from *one* of the following tracks. An appropriate First-Year Writing Seminar RLST 1111 may count toward any track with the approval of the director of undergraduate studies in Religious Studies.

a. ***Traditions.*** Allows students to focus on a particular religious tradition or related cluster of traditions that may transcend geographic limitations.

   Buddhist Traditions: RLST 1700, 1710, 1637, 2644, 3669, 3670W, 3749, 3753; ASIA 3633

   Christian Traditions: RLST 1309, 1330W, 1820, 2250W, 2310, 3119, 3304W, 3306, 3312, 3313, 3316, 3350; CLAS 3350, 3360, 3370, 3380; HIST 1760, 2250

   Hindu Traditions: RLST 2664, 4665, 4666

   Indigenous Traditions: RLST 1637, 3178, 3890, 4774

   Islamic Traditions: RLST 1500, 2461, 3561, 4551, 4552, 4554, 4562; ARA 3301; HIST 1190, 2140, 2190

   Jewish Traditions: RLST 1208, 2210, 2210W, 3270, 3350; JS 1002*, 1002W, 1200, 2300, 2330, 2620; PHIL 2102

   (**Formerly RLST 1200. Can be taken in lieu of RLST 1200 credit.*)

b. ***Geographies.*** Gives students the option of focusing on regional cultures, histories, and religions, as well as relationships between religious traditions within a specific region.

   Africa, West Asia, and the Mediterranean: RLST 1208, 1330W, 1500, 2461, 2471, 2472, 3312, 3890, 4562; ARA 3301; HIST 1190, 2190

The Americas: RLST 1100, 1190W, 3119, 3142, 3178, 3304; HIST 2530

East Asia: RLST 1700, 1710, 3747, 3749, 3753, 3670W, 3775, 4774; ASIA 3633

South/Southeast Asia: RLST 1500, 1637, 2644, 2664, 3561, 3669, 3670W, 4665, 4666

c.

Theories and Themes. Enables students to focus on theoretical, scientific, or thematic questions that may cross both traditional and geographic lines.

Religion in the literary and visual arts: RLST 2881, 2940, 3669, 3775, 4665, 4774, 4939

Theories of religion, science, and/or psychology: RLST 1820, 2472, 3079, 3940, 3941, 4834, 4835, 4836, 4837; JS 2330; ANTH 3141; ASTR 2130

3. *Tools of the Disciple Component* (4-6 credit hours)

Key issues in the study of religion and a formal introduction to the theories and methods in the academic study of religion.

a. ***Theory and Method.*** *3 credit hours.* RLST 4960W "Approaches to the Academic Study of Religion." Recommended for juniors, but may be taken earlier with permission of director of undergraduate studies in Religious Studies.
b. ***Majors Colloquium.*** *1 credit hour* (may be taken a total of three times). RLST 4970 "Majors Colloquium." Initiation into the range of professional activities in the study of religion from the craft of research to the production of papers, articles, and theses, coupled with targeted theoretical concerns relevant to the research of the students enrolled in that particular class.

4. *Electives* (9 credit hours)

a. Electives may be drawn from any of the courses listed under the three components of the major (*Breadth, Depth,* and *Tools of the Discipline*). Students may elect to deepen an area of study or they may build additional breadth in other traditions, regions, or themes.
b. One relevant language course (at least 3 credit hours) may count, with the approval of the director of undergraduate studies in Religious Studies. This course is not subject to the two-course (6 credit hours) limit on courses taken outside the department.

Honors in Religious Studies

The honors thesis provides an opportunity for highly motivated and exceptionally capable students to engage in independent work on a topic in religious studies. Honors theses require original research with primary sources and extensive use of relevant secondary scholarship, both with regard to the narrowly defined topic of the thesis and on the larger theoretical and methodological issues in the academic study of religion. 3.3 GPA in courses toward the major and cumulative 3.3 GPA are required for entry and must be maintained for completion of honors. Students work closely with faculty members in designing, researching, and writing a thesis beginning in the second semester of their junior year in order to present the thesis at the end of the second semester of their senior year, culminating in a final oral examination on the thesis.

a. ***Research and Writing.*** 6 credit hours. RLST 4998–RLST 4999 "Seniors Honors Thesis." RLST 4998 and RLST 4999 count as 6 of the 9 credit hours of the elective component of the
b. ***Majors Colloquium*** – *Co-requisite with RLST 4999.*

   RLST 4970 "Majors Colloquium" in the second semester of senior year, in which candidate must present results of research. Honor program candidates shall take 4970 co-requisite with 4999. Initiation into the range of professional activities in the study of religion from the craft of research to the production of papers, articles, and theses, coupled with targeted theoretical concerns relevant to the research of the students enrolled in that particular class.

Minor in Religious Studies

18 credit hours. The minor will introduce the rich diversity of religious traditions (*Breadth* component), initiate depth in at least one tradition (*Depth* component), and encourage further exploration of different perspectives or traditions through electives. A maximum of one course (3 credit hours) from outside the department may count if it is included in any of the three components of the major (*Breadth, Depth,* and *Tools of the Discipline*). No course may be used to satisfy more than one of the three components of the minor.

1. *Breadth Component* (9 credit hours)

Ensures a familiarity with the rich diversity of religious traditions in the world.

a. ***Encountering religious diversity.*** *3 credit hours.* RLST 1010. An introduction to the field of religious studies and select traditions.
b. **Introductory course in African or Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in the Mediterranean, Middle East, Africa, or the Americas (including but not limited to Judaism, Christianity, Islam, Egyptian religions, traditions of Sub- Saharan Africa, Native American traditions). RLST 1100, 1200, 1208, 1309, 1500. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

c. **Introductory course in Asian or non-Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in Asia or the Pacific (including but not limited to Hindu and Buddhist traditions and those religious traditions originating in East and South Asia). RLST 1637, 1700, 1710, 2644, 2664. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

2. *Depth Component* (3 credit hours)

Deepening the study of one *3 credit hours.*

The student must choose one of the two religious traditions used to meet the introductory course Breadth Component to delve further into that religion.

3. *Electives* (6 credit hours)

a. Electives may be drawn from any of the courses listed under the three components of the major (Breadth, Depth, and Tools of the Discipline). Students may elect to deepen an area of study or they may build additional breadth in other traditions, regions, or themes.
b. With the permission of the director of undergraduate studies in Religious Studies and a minimum 3 GPA in the minor, the student may take the Majors Colloquium RLST 4970.

Minor in Islamic Studies

20 credit hours. Students complete a required minimum of 20 credit hours from the list below, which must include:

- ARA 1102 Elementary Arabic, and
- RLST 1500 Introduction to Islam or HIST 1190 A History of Islam, and
- RLST 4554 The Qur’an and Its Interpreters.

Both RLST 1500 and HIST 1190 may count toward the minor. Up to 8 hours of Arabic language courses may count toward the minor; however, ARA 1101 does not count toward the minor.

ARABIC: 1102, Elementary Arabic; 2201–2202, Intermediate Arabic; 3101–3102, Advanced Arabic; 3201, Media Arabic; 3301, Arabic of the Qur’an and Other Classical Texts.

CINEMA AND MEDIA ARTS: 3892, Cinema and Islam.

CLASSICAL AND MEDITERRANEAN STUDIES: 2180, Mediterranean World from Late Antiquity to the Middle Ages; 3010, The Ancient Origins of Religious Conflict in the Middle East.

HISTORY: 1111, First-Year Writing Seminar (when related to Islamic history or culture as determined by the director of undergraduate studies); 1160, Modern South Asia; 1190, A History of Islam; 1200, The Arab Spring; 1270, Sub-Saharan Africa: 1400–1800; 1280, Africa since 1800: The Revolutionary Years; 2140, The Mughal World; 2150, India and the Indian Ocean; 2155, Muhammad and Early Islam; 2160 Medicine in Islam; 2170, Islam and the Crusades; 2180, Islamic Narratives: Narratives of Islam; 2190, Last Empire of Islam; 2293, Muslims in Modern Europe; 2530, African Religions in the Americas; 3150, Cities of Europe and the Middle East; 3209, Sex, Marriage, and the Body in Islamic Law; 3210, Muslims, Christians, and Jews in Medieval Spain; 3220W Images of India.

HINDI/URDU: 1101–1102 Elementary Hindi-Urdu; 2201–2202 Intermediate Hindi-Urdu.

HISTORY OF ART AND ARCHITECTURE: 1220, History of Asian Art and Architecture, 2180, Art and Architecture of the Islamic World.

JEWISH STUDIES: 2540, Power and Diplomacy in Modern Middle East; 2600, Islam and the Jews.

PERSISAN: 1101-1102, Elementary Persian

PHILOSOPHY: 2102, Medieval Philosophy; 3006, Islamic Philosophy.

POLITICAL SCIENCE: 1111, First-Year Writing Seminar (when related to Islamic history or culture as determined by the director of undergraduate studies); 2203, Middle East Politics; 3235, Political Islam; 3272W, The War in Iraq 2002–2011; 3896, Selected Topics (when related to Islamic politics or culture as determined by the director of undergraduate studies).

RELIGIOUS STUDIES: 1111, First-Year Writing Seminar (when related to Islamic religion or culture as determined by the director of undergraduate studies); 1500, Introduction to Islam; 2461, Islam in Africa; 2471, Religion in Africa; 4551, Islamic Mysticism; 4552, Islam in the Modern World; 4554, The Qur’an and Its Interpreters; 4562, Culture, Religion, and Politics of the Arab World; 4666, Devotional Traditions of South Asia: Hindu, Muslim, Sikh; 4592, Advanced Seminar in Arabic; 4593, Advanced Seminar in Islamic Tradition.

TURKISH: 1101-1102, Elementary Turkish; 2201-2202, Intermediate Turkish

Minor in Arabic Language

18 credit hours. Students complete a required minimum of 18 credit hours from the list below, following one of two tracks.

Track A “Foundations and Literature”: 9 credit hours from category I, Grammar and Constructions and 9 credit hours from category II, Literature and Culture.

Track B “Full Proficiency”: 12 credit hours from category I, Grammar and Constructions, and 6 credit hours from category II, Literature and Culture. No credit hours will be counted for Arabic 1101 or Arabic 1102.

CATEGORY I, Grammar and Constructions: ARA 2201, Intermediate Arabic I; 2202, Intermediate Arabic II; ARA 3101,

Advanced Arabic I; 3102, Advanced Arabic II.

CATEGORY II, Literature and Culture: ARA 3201, Media Arabic; ARA 3301, Arabic of the Qur’an and Other Classical Texts; RLST 4592, Reading Seminar in Arabic Literature; RLST 4593, Reading Seminar in Islamic Tradition.

Arabic

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

If a student is pursuing the minor in Islamic Studies and the minor in Arabic language, ARA 1102 may be the only Arabic course that counts toward the minor in Islamic studies.

Scientific Computing

DIRECTORS Robert E. Bodenheimer (Computer Science), Thomas J. Palmeri (Psychology), David A. Weintraub (Physics and Astronomy)

Affiliated Faculty

PROFESSORS Ralf Bennartz (Earth and Environmental Sciences), Gautam Biswas (Electrical Engineering and Computer Science), Mario Crucini (Economics), Peter T. Cummings (Chemical and Biomolecular Engineering), Mark N. Ellingham (Mathematics), David Furbish (Earth and Environmental Sciences), Guilherme Gualda (Earth and Environmental Sciences), Kelly Holley-Bockelmann (Astronomy), Shane Hutson (Physics), Gordon D. Logan (Psychology), Terry P. Lybrand (Chemistry and Pharmacology), Bradley Malin (Biomedical Informatics), Clare M. McCabe (Chemical and Biomolecular Engineering), Jens Meiler (Chemistry), Michael I. Miga (Biomedical Engineering), Mark Neamtu (Mathematics), Caglar Oskay (Civil and Environmental Engineering), Thomas J. Palmeri (Psychology and Neuroscience), Antonis Rokas (Biological Sciences and Biomedical Informatics), Jeffrey D. Schall (Psychology and Neuroscience), Larry Schumaker (Mathematics), Paul Sheldon (Physics), Frank Tong (Psychology), Kalman Varga (Physics), David A. Weintraub (Astronomy), Robert Weller (Electrical Engineering)

ASSOCIATE PROFESSORS Andreas A. Berlind (Astronomy), Robert E. Bodenheimer (Computer Science), Will Doyle (Higher Education and Public Policy), Bennett Landman (Electrical Engineering), Haoxiang Luo (Mechanical Engineering), Sean Polyn (Psychology and Neuroscience), Jennifer Trueblood (Psychology), Steven Tschantz (Mathematics), Greg Walker (Mechanical Engineering), Steve Wernke (Anthropology)

ASSOCIATE PROFESSOR OF THE PRACTICE Gerald H. Roth (Computer Science)

ASSISTANT PROFESSORS Hiba Baroud (Civil and Environmental Engineering), Matthew Berger (Computer Science), Nicole Creanza (Biological Sciences), William Holmes (Physics and Astronomy), Carlos Lopez (Cancer Biology), Ipek Oguz (Computer Science and Biomedical Engineering), Mikail Rubinov (Biomedical Engineering)

COURSES OFFERED: SC

The College of Arts and Science and the School of Engineering offer an interdisciplinary minor in scientific computing

to help students in the physical, biological, and social sciences as well as engineering acquire the ever-increasing computational skills that such careers demand. Students who complete this minor will have a toolkit that includes programming skills useful for simulating physical, biological, and social dynamics as well as an understanding of how to take advantage of modern software tools to extract meaningful information from small and large data sets.

Computation is now an integral part of modern science. Computer simulation allows the study of natural phenomena impossible or intractable through experimental means. Astronomers studying the formation of massive black holes, neuroscientists studying brain networks for human memory, economists studying effects of regulation on market dynamics, and biochemists studying the three-dimensional structure of proteins are united in many of the computational challenges they face and the tools and techniques they use to solve these challenges.

Students pursuing the scientific computing minor are taught techniques for understanding such complex physical, biological, and social systems. Students are introduced to computational methods for simulating and analyzing models of complex systems, to scientific visualization and data mining techniques needed to detect structure in massively large multidimensional data sets, to high-performance computing techniques for simulating models on computing clusters with hundreds or thousands of parallel, independent processors and for analyzing terabytes or more of data that may be distributed across a massive cloud or grid storage environment.

The scientific computing minor at Vanderbilt is supported by faculty and includes students from a wide range of scientific and engineering disciplines. While the content domain varies, these disciplines often require similar computational approaches, high-performance computing resources, and skills to simulate interactions, model real-life systems, and test competing hypotheses. Scientific computing embodies the computational tools and techniques for solving many of the grand challenges facing science and engineering today.

The minor in scientific computing prepares students for advanced course work that combines computational approaches with a substantive area of science or engineering. It prepares students for directed or independent study with a faculty member on a research project. It prepares students for advanced study in graduate school. It provides skills that will be attractive to many employers after graduation.

The minor in scientific computing is distinct from the minor in computer science. Scientific computing uses computation as a tool to solve scientific and engineering problems in research and application. It is more focused on simulation, numerical techniques, high performance computing, and higher-level methods than the minor in computer science, which is focused on the algorithms, systems, and technologies that enable such methods to be developed and employed.

Details of the minor requirements are provided in the School of Engineering section of the catalog, and are also available at vanderbilt.edu/scientific_computing.

Scientific Computing

Scientific Computing Minor

DIRECTORS Robert E. Bodenheimer, Thomas J. Palmeri, David A. Weintraub

Affiliated Faculty

PROFESSORS Ralf Bennartz (Earth and Environmental Sciences), Gautam Biswas (Electrical Engineering and Computer Science), Robert E. Bodenheimer Jr. (Computer Science), Mark N. Ellingham (Mathematics), David Furbish (Earth and Environmental Sciences), Guilherme Gualda (Earth and Environmental Sciences), Kelly Holley-Bockelman

(Astronomy), Shane Hutson (Physics), Bennett Landman (Electrical and Computer Engineering), Gordon D. Logan (Psychology), Haoxiang Luo (Mechanical Engineering), Terry P. Lybrand (Chemistry and Pharmacology), Michael I. Miga (Biomedical Engineering), Mark Neamtu (Mathematics), Thomas J. Palmeri (Psychology and Neuroscience), Antonis Rokas (Biological Sciences), Jeffrey D. Schall (Psychology and Neuroscience), Larry Schumaker (Mathematics), Paul Sheldon (Physics), Kalman Varga (Physics), David A. Weintraub (Astronomy)

PROFESSOR OF THE PRACTICE Gerald H. Roth (Computer Science)

ASSOCIATE PROFESSORS Sean Polyn (Psychology and Neuroscience), Jennifer Trueblood (Psychology), Greg Walker (Mechanical Engineering), Steve Wernke (Anthropology)

ASSISTANT PROFESSOR William Holmes (Physics and Astronomy)

COURSES OFFERED: SC

Faculty in the School of Engineering and the College of Arts and Science offer an interdisciplinary minor in scientific computing to help natural and social scientists and engineers acquire the ever-increasing computational skills that such careers demand. The minor is administered by the School of Engineering. Students who complete this minor will have a toolkit that includes programming skills useful for simulating physical, biological, and social dynamics, as well as an understanding of how to take advantage of modern software tools to extract meaningful information from small and large datasets.

Computation is now an integral part of modern science and engineering. In science, computer simulation allows the study of natural phenomena impossible or intractable through experimental means. In engineering, computer simulation allows the analysis and synthesis of systems too expensive, dangerous, or complex to model and build directly. Astronomers studying the formation of massive black holes, neuroscientists studying neural networks for human memory, mechanical engineers studying the designs of turbines and compressors, and electrical engineers studying the reliability of electronics aboard spacecraft are united both in the computational challenges they face and the tools and techniques they use to solve these challenges.

Students in the program in scientific computing are taught techniques for understanding such complex physical, biological, and also social systems. Students are introduced to computational methods for simulating and analyzing models of complex systems, to scientific visualization and data mining techniques needed to detect structure in massively large multidimensional data sets, to high performance computing techniques for simulating models on computing clusters with hundreds or thousands of parallel, independent processors and for analyzing terabytes or more of data that may be distributed across a massive cloud or grid storage environment.

Scientific computing at Vanderbilt is supported by faculty and includes students from a wide range of scientific and engineering disciplines. While the content domain varies, these disciplines often require similar computational approaches, high-performance computing resources, and skills to simulate interactions, model real-life systems, and test competing hypotheses. Scientific computing embodies the computational tools and techniques for solving many of the grand challenges facing science and engineering today.

The minor in scientific computing prepares students for advanced coursework that combines computational approaches with a substantive area of science or engineering. It prepares students for independent study with a faculty member on a research project. It prepares students for advanced study in graduate school. It provides skills that will be attractive to many employers after graduation.

The minor in scientific computing is distinct from the minor in computer science. Scientific computing uses computation as a tool to solve scientific and engineering problems in research and application. It is more focused on simulation, numerical techniques, high performance computing, and higher-level methods than the minor in computer science, which is focused on the algorithms, systems, and technologies that enable such methods to be developed and employed.

Scientific Computing Minor

The minor in scientific computing requires 15 credit hours, distributed as follows:

1. CS 1101 or 1103 or 1104. (3 hours)
2. CS 2204 (CS 2201 may be substituted for 2204 with the approval of a program director). (3 hours)
3. Elective courses (9 hours). Three hours must come from course list A (Mathematical, Quantitative, and Data Science Methods); three hours must come from course list B (Computational, Simulation, and Modeling Methods); and three hours can come from either course list A or B, or from independent study (SC 3850/3851) with a faculty member affiliated with the SC minor.

A. Computational, Simulation, and Modeling Methods

SC 3250	Scientific Computing Toolbox
ANTH 3261	Introduction to Geographic Information Systems and Remote Sensing
BMIF 6310	Foundations of Bioinformatics
BMIF 7380	Data Privacy in Biomedicine
BSCI 3272	Genome Science
BME 2400	Quantitative Methods I: Statistical Analysis
CE 4320	Data Analytics for Engineers
ECON 3032	Applied Econometrics
ECON 3035	Econometric Methods
ECON 3750	Econometrics for Big Data
ECE 6358	Quantitative Medical Image Analysis
HOD 3200	Introduction to Data Science
MATH 3620	Introduction to Numerical Mathematics
MATH 3670	Mathematical Data Science
MATH 4600	Numerical Analysis
MATH 4620	Linear Optimization
MATH 4630	Nonlinear Optimization

B. Computational, Simulation, and Modeling Methods

SC 3260	High Performance Computing
ASTR 3600	Stellar Astrophysics
ASTR 3700	Galactic Astrophysics
ASTR 3800	Structure Formation in the Universe
BME 7310	Advanced Computational Modeling and Analysis in Biomedical Engineering
BME 7410	Quantitative Methods in Biomedical Engineering
CHBE 4830	Molecular Simulation
CHEM 5410	Molecular Modeling Methods
CHEM 5420	Computational Structural Biochemistry
CS 3274	Modeling and Simulation
EES 4760	Agent and Individual Based Computational Modeling
MATH 3630	Mathematical Modeling in Biology
MATH 3660	Mathematical Modeling in Economics
ME 4263	Computational Fluid Dynamics and Multiphysics Modeling
ME 4275	Finite Element Analysis
NSC 3270	Computational Neuroscience
PHYS 3200	Statistical Physics
PHYS 3790	Computational Physics
PSY 4218	Computational Cognitive Modeling
PSY 4219	Scientific Computing for Psychological and Brain Sciences
PSY 4775	Models of Human Memory

Sociology

Program of Concentration in Sociology

Comprehensive Exam

Program of Concentration in Environmental Sociology

Comprehensive Exam

Minor in Sociology

Licensure for Teaching

CHAIR Holly McCammon

DIRECTOR OF UNDERGRADUATE STUDIES Shaul Kelner

DIRECTOR OF GRADUATE STUDIES Joshua Murray

PROFESSORS EMERITI George Becker, Karen Campbell, Walter Gove, Gary Jensen, Ronnie Steinberg

PROFESSORS André Christie-Mizell, Daniel Cornfield, Jenny Davis, David Hess, Larry Isaac, Holly McCammon, Jonathan Metzl

ASSOCIATE PROFESSORS Laura Carpenter, Shaul Kelner, Richard Lloyd, Joshua Murray, Mariano Sana, Lijun Song

ASSISTANT PROFESSORS Brianna Castro, Rachel Donnelly, Alexandre Frenette, Patrick Greiner, Lucie Kalousova, Bianca Manago, Lawrence Stacey

PRINCIPAL SENIOR LECTURERS Joe Bandy

SENIOR LECTURERS Laurie Woods

LECTURERS William Hale, Jihan Mohammed, Tiffany Wilmot

ASSOCIATE PROFESSORS OF THE PRACTICE Zdravka Tzankova

COURSES OFFERED: SOC

Sociology, the study of social consensus, conflict, and change, offers students a rich and systematic understanding of society and the meaning of social interaction. The department's courses cover a wide range of sociological themes including arts, culture, and religion; cities, states, and political economy; deviant behavior and crime; environment and population; gender and sexuality; health and the life course; race, ethnicity, and immigration; social movements, politics, and power; and work, labor, and occupations. Undergraduate courses in sociology prepare students for graduate work or provide further preparation for a career in law, medicine, business, research, education, the clergy, nursing, social work, or civil service. Two major programs are available, sociology and environmental sociology. Students may declare only one of the majors offered by the Department of Sociology; double majors within the department are not permitted.

Program of Concentration in Sociology

Students majoring in sociology are required to complete 33 credit hours of work in sociology (36 credit hours for students in the Honors Research Track). The major consists of five types of courses as listed below: introduction, theory, research skills, core areas, and electives.

Course work for the major is distributed as follows:

Program I (Standard Track)

A total of 33 credit hours as follows:

1. *Introduction:* Sociology 1010, 1010W, 1020, or 1020W	3
2. *Theory:* Sociology 3001	3
3. *Research Skills:* Sociology 3002 (or HOD 2500 for students who double major in sociology and HOD)	3
4. *Core Areas:* Students must take at least one course in three of the four core areas listed below. A course cannot be used to satisfy more than one requirement in the major. *Arts and Culture, Institutions and Organizations:* Sociology 3201, 3202, 3203, 3204, 3205, 3213, 3221, 3222, 3223, 3224, 3224W, 3231, 3232, 3233, 3615 *Health, Environment, Population, and Migration:* Sociology 3301, 3302, 3303, 3304, 3306, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3321, 3322; Environmental and Sustainability Studies 4101, 4101W; Medicine, Health, and Society 2310, 2430 *Politics, Law, and Conflict:* Sociology 3233, 3601, 3602, 3603, 3604, 3605, 3611, 3612, 3613, 3614, 3615, 3616, 3621, 3622, 3623, 3624; Jewish Studies 2560 *Race, Ethnicity, and Gender:* Sociology 3236, 3601, 3616, 3701, 3702, 3703, 3704, 3711, 3722, 3723, 3724; Jewish Studies 2400, 2450	9
5. *Electives* Any 5 sociology courses not used to satisfy the above requirements. SOC 2100 or its equivalent may be counted toward the electives. (Equivalent courses are ECON 1500 or 1510 or MATH 1011 or 2820. Students who double major in sociology and psychology or in sociology and the Peabody majors of human and organizational development, child development, cognitive studies, or child studies may also choose from PSY 2100 or PSY-PC 2110.) Electives may also include only one of the following 1000-level sociology courses: Sociology 1030, 1041, 1041W, or 1111. No other 1000-level sociology course may be counted toward the electives requirement of the major except by permission of the director of undergraduate studies. The Department of Sociology advises students to group their elective sociology courses in a cluster of advanced concentration electives to be selected with the student's adviser.	15

Program II (Honors Research Track)

A total of 36 credit hours as follows:

The Honors Research Track offers superior majors in sociology the opportunity to pursue intensive work through an independent research project. Students interested in pursuing the Honors Research Track in Sociology should contact the director of undergraduate studies for more information. To be considered for the Honors Research Track in Sociology, a student must have a minimum cumulative GPA of 3.3 and a minimum GPA of 3.3 for courses that count toward the sociology major. Students who are recommended for the program by the director of undergraduate studies will typically begin the program in the first semester of their junior or senior year.

The Honors Research Track in Sociology requires:

- Successful completion of requirements 1–4 in Program I, for a total of 18 credit
- Successful completion of the statistics requirement: SOC 2100 or its equivalent (defined in requirement 5 of Program I).
- Completion of 12 credit hours of elective courses. The statistics requirement is counted toward the Electives may include only one of the following 1000-level sociology courses: Sociology 1041, 1041W, or 1111. No other 1000-level sociology course may be counted toward the electives requirement of the major except by permission of the director of undergraduate studies. If students take more than 6 credit hours of SOC 4981, the additional credit hours (7–12) are counted toward the elective courses.
- Successful completion of at least two semesters of SOC 4981 (Honors Research). The first semester of 4981 (Honors Research) is a 3 credit hour seminar in which students develop the literature review and research plan for the honors thesis. In the second semester of 4981 (Honors Research), also for 3 credit hours, students must complete the research and data collection, data analysis, and initial write-up of results of the thesis. Students may elect to take a third or fourth semester of 4981 during their senior year, when they may, for example, work on revisions of the project and/or on publication. Students who begin the Honors Track in their senior year may also take more than 6 credit hours of 4981, up to a maximum of 12 credit hours.
- Successful defense of the completed thesis through an oral defense attended by the chair and reader of the thesis; this oral defense typically takes place during the second semester of the student’s senior year. In order to earn honors in sociology, students must successfully complete and defend an honors thesis before graduation.

Comprehensive Exam

In order to graduate with a sociology major, students must take a comprehensive exam during their senior year. The exam is not graded, and no grade will appear on the student’s transcript. The purpose of the exam is to test the extent to which sociology majors are retaining core aspects of the sociology curriculum.

Program of Concentration in Environmental Sociology

Environmental sociology is the study of the relationship between modern societies and the environment at a variety of scales, from households to global relations. It includes issues such as public understanding of environmental issues, the environment and inequality, environmental social movements and social change, and analysis of environmental reform and adaptation. Environmental sociology is different from environmental science, which is based in the natural sciences, and environmental studies, which includes courses from a wide range of disciplines, including engineering and the humanities. The department’s program in environmental sociology includes a solid introduction to sociology and sociological methods as well as foundation requirements in environmental science. The program prepares students for careers in government, the law, management, research and teaching, and the nonprofit sector.

Students majoring in environmental sociology are required to complete 33 credit hours of course work. The major consists of four types of courses: foundation social science courses, foundation environmental science courses, research skills, and environmental sociology courses.

Program I (Standard Track)

A total of at least 33 credit hours as follows:

1. *Foundation Courses in Sociology* SOC 1020 or 1020W or 1030, SOC 3001	6 credit hours
2. *Foundation Courses in Environmental Sciences* Two courses from EES 1510, 1030, 1070, 1080, 1140, 1111**, 2150, 2510,* 3310,* 3220,* 3310,* 4680,* 4750,* 4820;* at least one of which must address climate-related issues (EES 1080, 1140, 2110*, 2150, 2510*, 3310*, 4650*, 4680*, 4820*, or another EES course as approved by the director of undergraduate studies of Environmental Sociology). **Requires prerequisites.* ***1111s require permission of the director of Environmental Sociology.*	at least 6 credit hours
3. *Research Skills* SOC 2100 (or other statistics course approved by the director of undergraduate studies of Environmental Sociology) followed by or concurrent with SOC 3002 or HOD 2500 for those majoring in HOD.	6 credit hours
4. *Environmental Sociology Core* 15 credit hours selected from the following: SOC 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3321, 3604, 3605, 3881,* 4961;* ENVS 4101, ENVS 4101W **As approved by the director of undergraduate studies of Environmental Sociology*	15 credit hours

Program II (Honors Research Track in Environmental Sociology)

A total of at least 36 credit hours as follows:

The Honors Research Track offers superior majors in environmental sociology the opportunity to pursue intensive work through an independent research project. Students interested in pursuing the Honors Research Track in Environmental Sociology should contact the director of undergraduate studies of Sociology for more information. To be considered for the Honors Research Track in Environmental Sociology, a student must have a minimum cumulative GPA of 3.3 and a minimum GPA of 3.3 for courses that count toward the environmental sociology major. Students who are recommended for the program by the director of undergraduate studies of Sociology will typically begin the program in the first semester of their junior or senior year.

The Honors Research Track in Environmental Sociology requires:

1. Successful completion of requirements 1 through 3 in the Standard Track.
2. At least 12 credit hours from requirement 4 in the Standard Track.
3. Successful completion of at least two semesters of SOC 4981 (Honors Research). The first semester of 4981 (Honors Research) is a 3 credit hour seminar in which students develop the literature review and research plan for the honors thesis. In the second semester of 4981 (Honors Research), also for 3 credit hours, students must complete the research and data collection, data analysis, and initial write-up of results of the thesis. Students may elect to take a third or fourth semester of 4981 during their senior year, when they may, for example, work on revisions of the project and/or on publication. Students who begin the Honors Program in

their senior year may also take more than 6 credit hours of 4981, up to a maximum of 12 credit hours.
4. Successful defense of the completed thesis through an oral defense attended by the chair and reader of the thesis; this oral defense typically takes place during the second semester of the student's senior year. To earn honors in environmental sociology, students must successfully complete and defend an honors thesis before graduation.

Comprehensive Exam

In order to graduate with an environmental sociology major, students must take a comprehensive exam during their senior year. The exam is not graded, and no grade will appear on the student's transcript. The purpose of the exam is to test the extent to which majors are retaining core aspects of the environmental sociology curriculum.

Minor in Sociology

The minor in sociology is intended for those students who want to gain an overview of the discipline and to sample some of the special lines of study in it.

Students are required to complete 18 credit hours of course work inside the department, distributed as follows:

1. Sociology 1010, 1010W, or 1020, 1020W	3
2. Sociology 3001	3
3. Four courses, including at least one from three of the four core areas listed in above major	12
Total credit hours:	18

Licensure for Teaching

Candidates for teacher licensure in sociology at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Spanish and Portuguese

Program of Concentration in Spanish

Honors Program in Spanish

Minor in Spanish

Minor in Spanish for the Professions

Minor in Portuguese

Program of Concentration in Spanish and Portuguese

Program of Concentration in Spanish and European Studies

Teacher Licensure

Catalan

Portuguese

Spanish

CHAIR N. Michelle Murray

DIRECTOR OF UNDERGRADUATE STUDIES María Paz Pintané

DIRECTOR OF GRADUATE STUDIES Christina Karageorgou-Bastea

PROFESSORS EMERITI Susan Berk-Seligson, Victoria A. Burrus, Cathy L. Jrade, C. Enrique Pupo-Walker

PROFESSORS Earl E. Fitz, Edward H. Friedman, Ruth Hill, William Luis, Philip D. Rasico, Benigno Trigo, Andrés Zamora

ASSOCIATE PROFESSORS José Cárdenas Bunsen, Christina Karageorgou-Bastea, Emanuelle Oliveira-Monte, N. Michelle Murray

ASSISTANT PROFESSORS Luis F. López González, Anna Castillo

ASSOCIATE PROFESSOR OF THE PRACTICE Chalene Helmuth

ASSISTANT PROFESSOR OF THE PRACTICE María Paz Pintané

MELLON ASSISTANT PROFESSOR Anna Castillo

PRINCIPAL SENIOR LECTURERS Lorraine Catanzaro, Rachel R. Chiguluri, Heraldo Falconi, Victoria Gardner, Clint Hendrix, Benjamin Legg, Patrick Murphy, Amarilis Ortiz, Carolina Palacios

SENIOR LECTURERS José Luis Aznar, Sarah Delassus, Stacey Johnson, Alicia Lorenzo-García, Cynthia M. Wasick

PRINCIPAL SENIOR LECTURER, RETIRED Elena Olazagasti-Segovia

SENIOR LECTURER, RETIRED Raquel Rincon

COURSES OFFERED: CTLN, PORT, SPAN

The Department of Spanish and Portuguese offers a wide range of courses in the language, culture, and literature of Spain and Spanish America and is well known for its program in Portuguese and Brazilian studies. Intensive Elementary Catalan is also offered.

The department offers programs of concentration in both Spanish and Spanish and Portuguese. Majors take courses in language, literature, linguistics, and culture. An interdisciplinary major is available in Spanish and European Studies. Qualified Spanish majors may elect to take graduate courses in their senior year or participate in honors work. Minors in Spanish and in Portuguese are also offered.

The department serves majors from the Center for Latin American Studies and the Max Kade Center for European and German Studies. On the graduate level, the department offers a doctoral program in Spanish and a combination doctoral degree in Spanish and Portuguese.

Many students participate in Vanderbilt programs in Seville, Barcelona, Madrid, and Palma de Mallorca in Spain; Argentina, Chile, and Brazil in South America; and Cuba and the Dominican Republic in the Caribbean. Maymesters in Spain and Peru are also offered. Activities organized by the department include lectures, films, symposia, and Brazil Week. The department has a chapter of the national honor society Sigma Delta Pi for students of Spanish.

Note for all programs: An AP score of 5 on the Spanish literature test, with a proctored departmental placement score of 460 or greater, may substitute for SPAN 3301W. An AP score of 5 on the Spanish language test, with a proctored departmental placement test of 460 or greater, may substitute for Spanish 3302. A student who earns an AP score of 5 on both tests and receives a proctored departmental placement score of 460 or greater may choose only one substitution.

Program of Concentration in Spanish

The major requires 30 credit hours in Spanish courses numbered 3301W and above. The distribution requirements are as follows:

1. *Core requirements:* 3301W, 3302, and 3303. A more advanced composition course may be substituted for 3301W. A more advanced conversation course may be substituted for 3302. See note above for AP test scores that, paired with a proctored departmental placement score, may substitute for *one* of these courses.
2. *Literature:* 9 credit hours from courses numbered 3835 or 3893 or 4400–4980.
3. *Linguistics:* 3 credit hours from courses numbered 3892 or 4300–4360.
4. *Electives:* 9 credit hours from courses numbered 3320–3835 or 3891–4980. Students may substitute 3 credit hours of a language course in either Portuguese (1103 or higher) or Catalan (1103 or higher) as one elective.

All courses that count towards the major must be taken in Spanish and taken for a letter grade. The core courses 3301W and 3303 must be taken on the Vanderbilt campus. (This requirement does not apply to students who transfer to Vanderbilt from other U.S. institutions and have completed equivalent courses at their previous institution.) Students must take Spanish 3301W, 3302, and 3303 in order to participate in most study abroad programs. Students may count toward the major up to 12 credit hours of pre-approved course work from Vanderbilt study abroad programs in Spain or Latin America. Of the total number of credit hours taken abroad, no more than 6 credit hours may count toward the same distribution requirement area. A Maymester abroad course taught by a professor with an appointment in the Department of Spanish and Portuguese does not count against the 12 credit hour limit. Students may count toward elective credit up to 3 credit hours of supervised Independent Study, pre-approved by the director of undergraduate studies, in Vanderbilt study abroad programs in Spain or Latin America; such independent study counts toward the maximum limit of 12 credit hours. Students may count towards the major PORT 1103 or CTLN 1103.

Honors Program in Spanish

Candidates for honors in Spanish who meet college and departmental requirements must complete 36 credit hours in Spanish courses numbered 3301W and above. Students satisfy the requirements of the 30-credit-hour major in Spanish, in which one of the required literature courses is either the undergraduate seminar, Spanish 4980 (3 credit hours), which may be taken during either the junior or senior year, or a graduate seminar (course numbered 7000–9520) approved by the adviser to the Honors Program, which may only be taken during the senior year. If Spanish 4980 is not available, it may, with permission of the adviser to the Honors Program, be substituted by an “enriched” undergraduate literature course in which the instructor assigns outside research and a second or longer term paper.

The remaining 6 credit hours of the honors program consist of a senior honors thesis, which is completed during the senior year as independent study (Spanish 4998–4999) under the direction of a faculty adviser. Candidates must submit a proposal for the thesis to their prospective faculty adviser no later than the second semester of their junior year. The completed thesis must be submitted within the second semester of the senior year (deadlines are available from the department). An oral examination on the thesis and the general area of research, administered by a committee of the department, will follow.

Minor in Spanish

The minor in Spanish requires a minimum of 18 credit hours. The specific requirements are as follows:

1. *3301W (A more advanced composition course may be substituted)*	3
2. *3302 (A more advanced conversation course may be substituted)*	3
3. *3303*	3
4. *3 credit hours of advanced Spanish literature chosen from courses numbered from 3835 or 3893 or 4400–4980*	3
5. *6 credit hours of electives chosen from courses numbered 3320–3835, 3891–4980*	6
Total credit hours:	18

All courses that count toward the minor must be taken in Spanish and taken for a letter grade. The core courses 3301W and 3303 must be taken on the Vanderbilt campus. (This requirement does not apply to students who transfer to Vanderbilt from other U.S. institutions and have completed equivalent courses at their previous institution.) Students must take Spanish 3301W, 3302, and 3303 in order to participate in most study abroad programs. Students may count toward the minor up to 6 credit hours of pre-approved course work from Vanderbilt study abroad programs in Spain or Latin America. A Maymester abroad course taught by a professor with an appointment in the Department of Spanish and Portuguese does not count against this limit. Students may transfer up to 3 credit hours of pre-approved course work from non-Vanderbilt study abroad programs.

Minor in Spanish for the Professions -- 18 credits

CORE COURSES (9 credits/3 courses) taken from
SPAN 3290 Introduction to Spanish for the Professions or
SPAN 3301W Intermediate Spanish Writing or

SPAN 3310W Spanish for Heritage Speakers

AND
SPAN 3302 Spanish for Oral Communication

AND
SPAN 3303 Introduction to Spanish and Spanish American Literature or
SPAN 3304 Current and Contemporary Issues

PROFESSIONAL COURSES (6 credits/2 courses) taken from
SPAN 3345 Spanish in Business and the Global Economy
SPAN 3830 Spanish, Health and Society
SPAN 3350 Spanish for the Legal Profession
SPAN 4310 Translation and Interpretation
SPAN 3891 Special Topics Course for the Professions

ELECTIVE (3 credits/1 course) taken from
SPAN 3303 or 3304, if not taken as a core course; or any SPAN course above 3304;

Approved Study Abroad course or approved Maymester Abroad course (3325, 3330); or
Approved Internship SPAN 3881

The minor in Spanish for the Professions requires a minimum of 18 credit hours. All courses that count toward the minor must be taken in Spanish and taken for a letter grade. The core courses 3290, 3301W, 3303 and 3304 must be taken at Vanderbilt. (This requirement does not apply to students who transfer to Vanderbilt from other U.S. institutions and have completed equivalent courses at their previous institution.) Students must take Spanish 3290

or 3301W; 3302; and 3303 or 3304 in order to participate in most study abroad programs. Students may count up to 6 credit hours of pre-approved course work from Vanderbilt study abroad programs in Spain or Latin America, or a Maymester abroad course taught by a professor with an appointment in the Department of Spanish and Portuguese.

Minor in Portuguese

The minor in Portuguese consists of a minimum of 15 credit hours. The specific requirements are as follows:

1. *Portuguese 2203 (Intermediate Portuguese; a more advanced language course may, subject to approval by the department, be substituted)*	3
2. *One of the following two courses: Portuguese 3301 (Portuguese Composition and Conversation) or Portuguese 3302 (Brazilian Pop Culture)*	3
3. *Portuguese 3303 (Introduction to Luso-Brazilian Literature)*	3
4. *At least one of the following two courses: Portuguese 4420 (Brazilian Literature through the Nineteenth Century) or Portuguese 4425 (Modern Brazilian Literature)*	3
5. *At least 3 additional credit hours selected from among the courses listed below (or a graduate course numbered 7000–9520 for qualified seniors; procedures may be found in the Academic Regulations section of the Undergraduate Catalog*). Portuguese 2205 (Portuguese and Global Health), 2995 (Literatures and Cultures of Lusophone Africa), 4350 (Brazilian Culture through Native Material), 4420 (Brazilian Literature through the Nineteenth Century), 4425 (Modern Brazilian Literature), 3892 (Special Topics in Portuguese Language, Literature, and Civilization)	3
Total credit hours:	15

Program of Concentration in Spanish and Portuguese

This major focuses on the two dominant languages (Spanish and Portuguese) of the Iberian Peninsula and Latin America and their literatures and cultures. The basic requirement for this major is a minimum of 33 credit hours in Spanish and Portuguese. The distribution is as follows:

1. Core requirements of Spanish 3301W, 3302, and 3303; Portuguese 2203, 3301 (or 3302), and 3303.
2. At least two Spanish courses numbered between 3320–3330, 3355–3385, 4400–4980 or 3835, 3891 or 3893.
3. At least two of the following Portuguese courses: 2205, 2995, 3892, 4350, 4420, 4425, 7070, 7071, and 9520.
4. One additional elective to be chosen from the courses listed under area 2 and 3 above.

A student who studies abroad may be able to substitute similar culture or literature courses with the permission of the director of undergraduate studies.

Program of Concentration in Spanish and European Studies

Students pursuing the interdisciplinary major in Spanish and European studies combine their focus on Spanish language and literature with a study of modern Europe in its political, economic, and cultural diversity. Students may elect this interdisciplinary major, which requires a minimum of 33 credit hours of course work. A semester of study abroad in Spain is recommended. Course work for the major is distributed as follows:

Spanish (21 credit hours)

Spanish language and literature core courses (9 credit hours): 3301W, 3302, and 3303 (a more advanced composition course may be substituted for 3301W; a more advanced conversation course may be substituted for 3302).

Spanish culture and civilization and/or Spanish literature (12 credit hours): 3320, 3325, 3355, 3360, 3365, 4400, 4405, 4410, 4415, 4440, 4445, 4455 4470, 4620, 4640, 4670, 4690, or, subject to a variance, any other courses dealing with Spain or Iberian issues.

Students may substitute 3 credit hours of a language course in either Portuguese (1103 or higher) or Catalan (1103 or higher) as an elective.

European Studies (12 credit hours)

European Studies core courses (3 credit hours): EUS 2201 or 2203

European Studies courses or alternative topical courses as approved by major adviser (6 credit hours)

Senior Tutorial (3 credit hours): EUS 4960 or equivalent course in Spanish

Teacher Licensure

Candidates for teacher licensure in Spanish at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Catalan

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Portuguese

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will

forfeit the test credit if they complete a lower-level course taught in that same language.

Spanish

Entering students should consult their advisers or the director of undergraduate studies at the Department of Spanish and Portuguese for advice on placement. Students who have not studied Spanish in high school should begin their studies at Vanderbilt in Spanish 1100. Students with high school Spanish on their records must present a department placement test score in Spanish to be placed correctly. (See department website for more details.)

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language. Exception: Students who take Spanish 3301W do not forfeit credit for Spanish 3302.

Teacher Education

Students interested in preparing for licensure as early childhood, elementary, special education, or secondary school teachers should meet with Associate Dean Roger Moore, College of Arts and Science, as soon as possible to initiate discussion with appropriate personnel in teacher education.

Specific information on program requirements will be found under Licensure for Teaching in the Peabody College section of this catalog.

Early Childhood and Elementary Education

Students interested in preparing to teach early childhood or elementary school pupils major in a single discipline or an interdisciplinary program in the College of Arts and Science as well as in education at Peabody College.

Secondary Education

The College of Arts and Science and Peabody College offer teacher education programs leading to secondary school teacher licensure in the following fields:

English

Mathematics

Science (Biological Sciences, Chemistry, Earth and Environmental Sciences, Physics)

Social Studies (History and Political Science). Economics, Psychology, and Sociology may become additional endorsement areas for students who also have selected history or political science as an endorsement area.

Students major in an academic discipline in the College of Arts and Science and complete a second major in education at Peabody College.

Special Education

Students interested in preparing to teach children with special needs major in special education at Peabody College. Areas of teacher licensure available are mild and moderate disabilities, multiple and severe disabilities, visual impairment, hearing impairment, and early childhood special education.

Theatre

CHAIR Phillip N. Franck

DIRECTOR OF UNDERGRADUATE STUDIES E. Christin Essin

PROFESSORS EMERITI Robert A. Baldwin, Jon W. Hallquist, Terryl W. Hallquist, Cecil D. Jones Jr.

PROFESSOR Phillip N. Franck

ASSOCIATE PROFESSORS E. Christin Essin, M. Leah Lowe

ASSISTANT PROFESSOR Elizabeth Cizmar, Kristyl Tift

PROFESSORS OF THE PRACTICE: Alexandra Sargent Capps, Elizabeth Haynes

WRITER IN RESIDENCE Krista Knight

COURSES OFFERED: THTR

Vanderbilt's Department of Theatre offers a vital center of innovative scholarship, teaching, creative expression, and exploration. The study of theatre introduces students to a major form of literature and performing arts, thereby developing a familiarity with one of the greatest cultural heritages and an understanding of human behavior and civilization as it is reflected through the ages. Theatre uniquely shapes perceptions about life into an active experience. Because this process encourages critical thought and discussion, the department provides a singular and important aspect of a liberal arts education through its production season and course work. Viewed as a practical extension of the department’s curriculum, plays are produced in Neely Auditorium, a laboratory where students learn to form creative expressions as well as to evaluate and to critique them.

On one level, the Department of Theatre helps the general liberal arts student develop reasoned standards of criticism and an understanding of the intimate correlation between the theatre and the society which it reflects, preparing Vanderbilt graduates for successful careers in theatre as well as other fields of interest. For its majors and minors, the department provides a more detailed and specialized study of the major components of theatrical endeavor, allowing opportunities for the practical application of course work in the productions staged at the theatre. In many cases, the department helps to prepare students with professional aspirations as either artists or teachers in their specialized area of interest.

Work in the productions at Vanderbilt reflects the instruction that occurs in the classroom at Neely Auditorium. Because the academic endeavors require hands-on, project-oriented teaching, students can expect small-to-medium class enrollments and numerous opportunities for exposure to faculty instruction outside of the classroom. The department’s curriculum includes courses in acting, directing, design, technology, dramatic literature, theatre history and criticism, and playwriting. The Department of Theatre frequently offers a Maymester program of study of theatre in London and the U.K. Students can either major or minor in theatre at Vanderbilt. The major consists of a minimum of 35 credit hours that include courses in acting, directing, dramatic literature, theatre history/criticism, design, technology, and stagecraft. For the minor, students select one of three more narrowly focused tracks (dramatic literature/theatre history, acting/directing, or design/technology) and complete a minimum of 18 credit hours of course work.

Students may also learn about theatre by studying with Coe Artists, distinguished guest-artist professionals brought to campus each year to benefit majors, minors, and those with a serious interest in theatre. Weeklong master classes are taught by playwrights, actors, designers, and directors from the professional world of theatre, television, and film. Previous Coe Artists have included such celebrated artists as Tim Miller, Sojourn Theatre, Katie Pearl, Lisa D’Amour, and Shawn Hall. Theatre also brings professional directors and designers as Coe Artists to campus to work within the department's production season.

Students have the opportunity to participate in a variety of theatrical experiences working with professional guests, as well as hear professional artists speak as guest lecturers.

Theatre majors and minors from Vanderbilt have entered a wide variety of professions and post-graduate opportunities after they graduate. Those seeking employment in the fields of theatre, film, radio, or television have secured positions at appropriate graduate schools or internships with professional companies immediately following their study at Vanderbilt. Many distinguished professional theatre companies across the nation, television networks in New York, and the film industry in Los Angeles include Vanderbilt University Theatre alumni as writers, actors, designers, technicians, dramaturgs, and stage managers. In addition, many Vanderbilt theatre students have secured teaching assignments at either the college/university level (once they have completed appropriate post-graduate education) or the elementary/secondary education level. Theatre also prepares students for success in other professions including medicine, law, education, policy, engineering, and business to name a few.

The study and practice of theatre offers individuals opportunities to participate through a variety of means: to collaborate with all other members of a production team; to express elements of abstract thought in both oral and written form; and to develop the critical ability to assess and analyze aesthetic choices.

Program of Concentration in Theatre

Students majoring in theatre are required to complete a minimum of 35 credit hours in courses concerned exclusively with theatre and dramatic literature. Required courses are 1010/1010W or 1111, 1711, 1611 2651, and 4961; two courses chosen from 2201, 2202W, 2204, and 4201; one course chosen from 3721, 3761, and 3741; additional 9 credit hours chosen from other theatre courses above the 2000 level.

Honors Program

The Honors Program in Theatre is designed to afford superior students the opportunity to pursue more intensive work within their major field. Admission requirements are: (1) completion of junior year; (2) completion of at least 21 credit hours of the theatre major; (3) 3.3 minimum cumulative GPA and a 3.5 minimum GPA in courses counting toward the major. Candidates who successfully complete the following requirements may graduate with honors or highest honors: (1) maintain the aforementioned GPA throughout the senior year; (2) complete all requirements of the theatre major; (3) complete 6 credit hours of independent research 4998–4999 (Honors Research and Thesis) normally taken during the senior year; (4) write an honors thesis to be completed by the second semester of the senior year; (5) successfully complete an honors oral examination on the topic of the thesis.

Minor in Theatre

A minor in theatre requires a minimum of 18 credit hours of courses in the department. All students minoring in theatre must complete 1010/1010W or 1111 and 4201. In addition, each student must complete one of the following three clusters: Dramatic Literature/Theatre History: 2201, 2202W, 2204, and 3201W; Acting/Directing: 1611, 3611, 4611, and 2651; Design/Technology: 1711 is required; choose three from 3721, 3761, 3741, or 3781.

Campus Resources

Catalog Search

A Community for Liberal Learning (Arts and Science)

"The work of the College of Arts and Science is fundamental. It is the basis of all professional study. No professional school can be self-sufficient. The College in its undergraduate and graduate work must remain the heart of the whole situation, and send its quickening life blood into every fiber and tissue."

—Chancellor James H. Kirkland at the semicentennial celebration of the university October 1925

Chancellor Kirkland's words were prophetic of our times as well as true of his own. Since its founding Vanderbilt has pursued its mission of excellence in the liberal arts with a commitment to liberal learning that is the special concern of the College of Arts and Science. Liberal learning endures because it brings men and women to subjects, concepts, and modes of thought that enable them to think critically about where humanity has been and where it ought to be going. The liberal arts spark curiosity and broaden vision, help to instill understanding of matters otherwise unknown, and encourage individuals to live their lives with a sense of purpose, context, and relatedness. A liberal education has perennial relevance and usefulness: it should prepare its recipients to think precisely, to reason clearly, and to judge wisely—all practical considerations in the pursuit of constructive and satisfying lives and in the practice of today's professions and vocations.

Today the College of Arts and Science maintains its historic position as the heart of the university. Excellence in undergraduate and graduate education is its unwavering aim.

The College of Arts and Science provides intellectual stimulation, training, and incentive designed to foster the lifelong liberal learning of its graduates. It offers challenging, forward-looking programs of study in the humanities, natural sciences, and social sciences resourcefully taught by distinguished faculty recognized for excellence in research, scholarship, and creative expression. It promotes self-realization and expression in the context of social responsibility.

Faculty and Students

The College of Arts and Science derives its strength from the range of its academic offerings, from the quality of the faculty who teach, and from the quality of the students who come to learn. Traditionally fortunate in its ability to attract and retain a superior faculty, the College of Arts and Science has more than 500 full-time professors who supplement their achievements in the classroom with significant research, creativity, and writing. Many faculty members hold awards for distinguished scholarship and have been elected to high offices in their professional associations, including the Classical Association of the Middle West and South, the American Economics Association, the American Political Science Association, the American Philosophical Association, the American Physical Society, the American Historical Association, and the Biophysical Society.

The quality of the College's faculty is matched by that of its diverse student body. Undergraduates come from the fifty states and fifteen to twenty foreign countries and are almost evenly divided between men and women.

Academic Support The Writing Studio / Tutoring Services

The Writing Studio provides undergraduate students the opportunity to meet with trained writing consultants to discuss individual writing concerns, from invention to drafting to revision. The Writing Studio provides a space for students to discuss work-in-progress with expert writers, to create their own writing, and to utilize available resources for improving both writing and critical thinking skills.

The mission of the Vanderbilt Writing Studio is to enhance student writing and writing instruction, and to encourage regular conversation about the writing process. The Writing Studio's extensive programming includes individual consultations, creative writing groups, workshops focused on specific issues in academic writing,

open- mike readings, and student-run writers’ support groups.

The Writing Studio is located at 1801 Edgehill Avenue, Suite 112, and there is a satellite location in 217 Commons Center convenient to the first-year residence halls. The Writing Studio website can be accessed at

One-on-one tutoring in many subjects is available through Tutoring Services, also located at 1801 Edgehill Avenue. Consultations in the Writing Studio and in Tutoring Services are free to all undergraduates.

Computers

The following locations are available for walk-in use of computers and software:

Center for Second Language Studies (Furman Hall 001)

Stevenson computer lab and lounge (Stevenson Center 2200)

Wilson computer lab (Wilson Hall 120)

All of the college’s computer labs and classrooms offer a wide variety of “courseware” and commercial “productivity software,” including word processing packages. Color printing and scanners are available in most of the labs. In addition to accessing software on the local servers, students may also connect to both campus services and the internet, including VUGmail and e-resources in the libraries, as well as course materials in Brightspace. While use of the above facilities is free, printing is charged per page.

The computer classrooms in the Center for Second Language Studies and Wilson Hall are available for walk-in use during the late afternoon and evening hours. Stevenson Center lab and lounge are card-accessible weeknights until 1:00

a.m. All lab hours are posted by semester at In addition to the college facilities, a few “kiosk” systems are available in the Sarratt Student Center. As a result, access to computers in the College of Arts and Science is extensive.

At last count, more than 98 percent of Vanderbilt students own a personal computer. Since all students also have a high-speed network connection, it is convenient for students to have their own system (please consult the ResNet guidelines for supported systems). However, most students will find that the college computing facilities provide all of the computing resources that are needed for success at Vanderbilt.

The Advising System

Entering first-year students are assigned advisers from CASPAR (College of Arts and Science Pre-major Academic Advising Resources Center). These “pre-major advisers” counsel students during their first three and one-half semesters, or until the students choose majors, when they are assigned faculty advisers in their major department or program. Pre-major advisers are specially trained to help students move efficiently through the requirements of AXLE (Achieving eXcellence in Liberal Education) and chart a course of study.

During the last two years of study, when a student is acquiring depth of knowledge in a major field, studies are guided by a specialist in that field. Students are encouraged to see their faculty advisers at any time, since the advisers are available for guidance and counseling and are faculty members with whom advisees may be studying.

All students are required to see their advisers prior to registration for each semester.

Advisers are generally happy to talk over any problems students may have, although their chief function is academic counseling. In addition, several members of the Dean's Office of Undergraduate Education, themselves teaching faculty members, have as their principal duty counseling students and referring them to sources of expertise on non-academic problems.

Public Lectures

THE BERRY LECTURES. Established in 1988 through the generosity of Kendall and Allen Berry, John and Shirley Lachs, Steve Turner, and Jim Burke. Three annual lectures—the Berry lecture, the Steve Turner lecture, and the Jim Burke lecture—are given by distinguished philosophers.

THE LOUIS JACOB BIRCHER LECTURE IN CHEMISTRY. Established in 1976 in recognition of Professor Bircher's forty-one years of service to Vanderbilt beginning in 1921. He served as the sole professor of physical chemistry until 1954, was chair of the Department of Chemistry from 1955 to 1961, and retired as professor emeritus in 1962. Family, colleagues, students, and friends of Professor Bircher have provided generous support for the series. The lecture is presented by a leading physical chemist.

THE BYRN HISTORY LECTURE. Established in 1986 and endowed by the late J. W. Byrn of Dickson, Tennessee, a student and admirer of the thought of the British historian Arnold Toynbee. Annual lectures deal with his fields of interest: world history, philosophy of history, and historiography.

THE FREDERICK LEROY CONOVER MEMORIAL LECTURE. First given in 1977 in honor of Vanderbilt's first analytical chemist. Professor Conover came to Vanderbilt in 1923 and remained for thirty-seven years. Lectures given by a distinguished analytical chemist are supported by family, colleagues, students, and friends of Professor Conover.

THE WALTER CLYDE CURRY SHAKESPEARE LECTURE. Inaugurated in 1982 and funded by one of his former students, this lectureship honors the late Walter Clyde Curry, distinguished medieval and Renaissance scholar, author of books on Chaucer, Shakespeare, and Milton, and for forty years beloved professor of English at Vanderbilt. Bringing to campus in alternate years eminent Shakespearean scholars and experienced Shakespearean performers, the lectureship gratefully recognizes Professor Curry's devoted service and lasting contributions to the university.

THE WAITE PHILIP FISHEL LECTURE. Established in 1974 as a tribute to Professor Fishel, who was known as an outstanding, popular teacher and was renowned for his research in metallurgy. Through the generosity of family, colleagues, students, and friends, the lecture is presented by a leading inorganic chemist.

THE HARRY C. HOWARD JR. LECTURESHIP. Established in 1994 at the Robert Penn Warren Center for the Humanities in honor of Harry C. Howard Jr. (B.A. 1951). The lectureship was endowed by Mr. and Mrs. Thomas Nash Jr. and Mr. and Mrs. George Renfro, all of Asheville, North Carolina, in honor of their longtime friend and attorney. The lectureship allows the Warren Center to bring an outstanding scholar to Vanderbilt annually to deliver a lecture on a significant topic in the humanities.

THE ARTHUR WILLIAM INGERSOLL MEMORIAL LECTURE. Established in 1973 to honor Arthur Ingersoll, professor of organic chemistry at Vanderbilt until his death in 1969. Each year contributions for this lecture are received from family, colleagues, students, and friends. A leading organic chemist is invited to present the lecture.

THE CARL K. SEYFERT LECTURE IN ASTRONOMY. Established in 1983 as part of the astronomy program's

commemoration of the thirtieth anniversary of the Arthur J. Dyer Observatory. The lectureship recognizes the untiring efforts and contributions to astronomy made by Carl K. Seyfert, professor of astronomy and first director of the Dyer Observatory. A distinguished astronomer is invited to present this lecture every third year.

THE SHANKS LECTURES. Established in 1984 and named for E. Baylis Shanks and Olivia H. Shanks in honor of their accomplishments in the fields of mathematics and education and in recognition of their loyalty and service to Vanderbilt University, these lectures are presented on two successive days in the fall of each year. A special committee from the Department of Mathematics, influenced by the professional interests of Professor and Mrs. Shanks, chooses the lecturers from mathematicians of the highest reputation. The topics of the lectureship vary from year to year according to the area of specialization of the speaker chosen. The lectures have been endowed by members of the family of Olivia and Baylis Shanks.

THE FRANCIS G. SLACK LECTURES IN PHYSICS. Established in 1977 by the Department of Physics and Astronomy in honor of Francis G. Slack, former Landon C. Garland professor of physics and chair of the department, these lectures recognize his many contributions to physics. The series was first partially endowed by his colleagues and students and then with the generous help of Professor Slack. Each speaker gives one lecture of general interest to the university and one more specialized lecture for the department.

THE DAVID STEINE LECTURE. Established in 1978 as a memorial to David Steine, professor of business administration in the Department of Economics and Business Administration, by members of his family, friends, and associates. The lecture is devoted to an economic problem of interest to the general public.

THE GERTRUDE VANDERBILT AND HAROLD S. VANDERBILT VISITING WRITERS PROGRAM. Established in the Department of

English in 1958 under the generous sponsorship of the late Mrs. Vanderbilt, this program has annually presented readings and public lectures by a poet, a novelist, and a critic—each of whom also visits classes and meets informally with members of the university and Nashville communities. Recent participants have included Dannie Abse, Madison Smartt Bell, Ellen Gilchrist, Alison Lurie, Czeslaw Milosz, Wyatt Prunty, Ann Thwaite, Anthony Thwaite, and Helen Vendler.

Academic Regulations in Peabody College

Honor System

All academic work at Vanderbilt is done under the honor system. (See the Honor System section in Life at Vanderbilt.)

Academic Advising

Each Peabody undergraduate is assigned an academic adviser who is familiar with his or her major or minor. This adviser is generally a faculty member in the major/minor department and is knowledgeable about the courses the student will need to complete his or her major/minor. The adviser helps the student determine the courses that are most suitable for the chosen major and serves as a mentor to the student.

However, enrollment in appropriate courses to fulfill degree requirements and knowledge of university policies and regulations regarding courses are the responsibility of the individual student.

Class Attendance

Students are expected to attend all scheduled meetings of classes in which they are enrolled; they have an obligation to contribute to the academic performance of all students by full participation in the work of each class. At the beginning of the semester, instructors explain the policy regarding absences in each of their classes, and thereafter they report to the office of the dean of the college the name of any student whose achievement in a course is being adversely affected by excessive absences. In such cases, the dean, in consultation with the instructor, takes appropriate action, which may include dropping the student from the class; students dropped after the deadline for withdrawal receive the grade *F*. Class attendance may be specified as a factor in

determining the final grade in a course, and it cannot fail to influence the grade even when it is not considered explicitly.

Course Load

A student must be enrolled in a minimum of 12 hours to be classified as a full-time student. Students wishing to carry more than 18 hours must obtain the approval of the Associate Dean for Undergraduate Academic Affairs. All undergraduate students are assumed to be full-time students for the purpose of administering probation and retention policies. A student who for reasons of health, family, or outside employment wishes to enroll in Peabody as a part-time student must obtain permission from the Associate Dean for Undergraduate Academic Affairs. The academic standing of such students will be considered on an individual basis. Normally, however, a student earning less than 12 hours will be placed on academic probation.

Residence Requirement

Students must complete a minimum of 60 hours in residence at Vanderbilt including the final two semesters.

Credit by Examination

In certain circumstances students may be awarded course credit by departmental examination. (This procedure is distinct from the award of credit through the College Board Advanced Placement Tests taken prior to a student’s first enrollment.). Students wanting to earn credit by departmental examination should consult the Peabody Office of Academic Services concerning procedures. To be eligible, students must be carrying a minimum of 12 hours and be in good standing.

Students must obtain the approval of the chair of the department that is to give the examination and the instructor designated by the chair. Students may earn up to 8 hours of credit by examination in any one department. Students may attempt to obtain credit by examination no more than twice in one semester and no more than twice in one course. Students may not repeat a course for grade replacement under the credit by examination procedures.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after learning the results of the examination.

Students enrolled for at least 12 hours are not charged extra tuition for hours earned through credit by examination, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no- credit courses and courses dropped after the change period. Students in this category must pay a $50 fee for the cost of constructing, administering, and grading the examination. Since this cost has already been incurred, students who refuse the credit hours and grade are charged the $50 fee nevertheless.

Full-time students with a tuition load exceeding 18 hours and students taking fewer than 12 hours pay tuition at the hourly tuition rate.

Liberal Education Core Guidelines

Applicants to Peabody College will be required to take the SAT I or ACT writing test and the SAT II mathematics test. Students with majors in human and organizational development, cognitive studies, child studies, or child development do not need the SAT II mathematics test. For applicants applying for Fall 2022 entry, Vanderbilt is test optional. Scores from the ACT or SAT are not required to be considered for admission. Applicants who want their test scores to be considered may self-report them on the application or may have official scores sent to Vanderbilt by the testing agency. Official test scores are required for students who applied with testing and who were admitted and enroll.

The following application of these scores will be made to the Peabody Liberal Education Core:

Writing Requirement

Before graduation, all Peabody students must successfully complete two writing courses and credit for the ENGL 1100s. Writing-intensive courses either have a “W” after the course number (A&S courses) or end with the digit "7" (Peabody courses).

To earn credit for ENGL 1100, students must complete one of the following:

- English 1100
- SAT: Combined score of at least 1220 on the Writing and Critical Reasoning sections, with a minimum score of 500 on each (test taken prior to March 2016).
- SAT: Score of at least 660 on the Evidence-Based Reading and Writing section, with a minimum score of 27 on the Reading section and a minimum score of 28 on the Writing and Language section (test taken March 2016 or later).
- ACT: Score of at least 27 on the English portion combined with a minimum score of 7 on the Writing portion (test taken prior to September 2015).
- ACT: Score of at least 27 on the English portion combined with a minimum score of 19 on the Writing portion (test taken between September 2015 and September 2016).
- ACT: Score of at least 30 on the English portion.
- AP: Minimum score of 4 on the English Language or English Literature exam.
- IB: Minimum score of 6 on the Higher level English A Literature or the Higher Level English A Language & Literature exam.
- Minimum score of 62 on the Tailwind Writing Skill and Reading Comprehension Proficiency Exam.

First-year seminars (courses labeled 1111) offered through the College of Arts and Science and Blair School of Music may count as writing-intensive courses. Peabody freshmen may register for first-year seminars when open registration begins if there are available seats in the course not reserved for Arts and Science students or Blair students. Peabody students are not *required* to take a First-year Writing Seminar.

Mathematics

Students with first majors in elementary, secondary, or special education with an SAT II Mathematics test score at or above 620 (Level I) or at or above 570 (Level II) are exempt from three hours of the math component of the Liberal Education Core mathematics category. Students with an exemption must take an additional three credit hours in their Liberal Education Core elective category to have the minimum required sixty-hour core. Students must take a statistics course if required for their major.

Students with first majors in child development, child studies, cognitive studies, or human and organizational development must take six hours as stated in the Liberal Education Core mathematics category.

Undergraduate Enrollment in 5000–8000-level Courses

All students wishing to take 5000–8000-level courses for either undergraduate or graduate credit must obtain the written approval of their academic advisers, the instructor of the course, and the Office of Academic Services. Some courses are designed to enroll both undergraduate and graduate/professional students in the same class section. Such courses will typically have two course numbers, one in the graduate range (5000–8000) and one in the undergraduate range (usually either 3000– or 4000–level). Unless they wish to take the course for post-baccalaureate credit, undergraduates must register for the course using the undergraduate course number and may do so without any special permission.

Undergraduates wishing to receive approval for graduate credit in 5000–8000-level courses also see below.

Undergraduate Enrollment for Post-Baccalaureate Credit

A qualified Vanderbilt University senior undergraduate may enroll in courses approved for post-baccalaureate credit and receive credit which, upon the student’s admission into a Peabody College professional program, may be applicable toward the professional degree. The principles governing this option are as follows:

1. Work taken under this option is limited to those 5000–8000-level courses approved for post-baccalaureate credit, excluding thesis and dissertation research courses and similar individual research and readings courses.
2. Such work must be in excess of that required for the bachelor’s degree.
3. At the time of registration, the student must have a *B* average in all prior work to be counted toward the bachelor’s degree, or a *B* average in all prior work to be counted toward the undergraduate major, or a *B* average in the preceding two semesters.

4. Undergraduate students wishing to count for post-baccalaureate credit courses taken under this option must consult the instructor of each course and must, at the time of registration, declare their intention on a form available at the Office of Academic Services.
5. The student's total course load (graduate plus undergraduate courses) must not exceed 15 hours during any semester in which graduate credit is pursued.
6. Permission for Vanderbilt undergraduates to enroll in post-baccalaureate courses does not constitute a commitment on the part of any department to accept the student in the future. Courses taken under this option are subject to departmental approval before they may be included on post-baccalaureate programs of study.
7. An undergraduate student exercising this option will be treated as a post-baccalaureate student with regard to class requirements and grading standards.

Interested students should consult the Peabody Office of Academic Services to verify their eligibility as defined above before attempting to register for post-baccalaureate course work under this option.

Undergraduate Enrollment for an Independent Study

Independent study courses, ranging from zero to three hours of credit, are listed in the *Schedule of Courses* and are intended for students in their junior and senior years. Students wanting to undertake an independent study must follow these guidelines:

1. Students must be in academic "good standing" (may not be on probation or Leave of Absence).
2. Students must arrange the independent study with a Vanderbilt full time faculty member who has agreed to supervise and grade this course.
3. Students may enroll for up to 3 hours of independent study in one semester.
4. Students must make a study plan detailing the nature of the project and the amount of credit. The Individual Learning/Directed Study contract must be approved by the instructor and the department chair (or the chair's designee) by the last day of the change period.
5. Registration for the course occurs when the completed Individual Learning/Directed Study contract is submitted to the Peabody Office of Academic Services. Registration for an independent study will not be allowed after the change period has ended.

Students may not repeat independent study courses for grade replacement.

Transfer Credit/Summer or Other Courses Off Campus

Students who transfer from another institution must have a final transcript sent directly to the Undergraduate Admissions Office, Vanderbilt University. Upon acceptance, students will be asked to submit course descriptions and syllabi for all proposed transfer credit. Upon acceptance, courses will be evaluated by Vanderbilt to determine which courses will transfer and which requirements (e.g., Liberal Education Core, professional core) are met by the transfer courses. No course for which a student received the grade *D+* or lower will transfer. Course work transferred to Vanderbilt from another institution will not carry with it a grade point average.

Transfer students must complete at least 60 hours of work at Vanderbilt. Two of the four semesters in residence must be the last two semesters of the student's degree program.

Peabody students who wish to take course work during the summer, or during an academic-year semester, at a regionally accredited two-year or four-year college or university and transfer up to 12 hours to Vanderbilt must be in good standing with at least a C average. Prior approval must be granted for all courses to be taken elsewhere. If the courses are to be taken during the academic year, the student must take a personal leave explicitly approved for this purpose by the Peabody Dean's Office. Students on leave for other reasons (e.g., medical or other personal reasons) cannot take course work elsewhere for transfer credit without prior permission. Course work transferred to Vanderbilt from another institution will not carry with it a grade point average.

Requests to participate in non-Vanderbilt-approved overseas programs for transfer credit will be approved only under exceptional circumstances in which the proposed program represents a truly unique and unusual educational opportunity. To apply for approval, the student should complete the transfer of credit application and apply for a leave of absence for the relevant semester. The student must be in good standing with at least a 2.700 grade point average as of the date of application, and approval must be granted in advance of the study

overseas. Petitions for leaves of this type must be filed at least one month before the close of the preceding semester, and final approval of such petitions always rests with the dean’s office. It should be noted, however, that if a program has been approved by Vanderbilt, students must enroll in the program via the Global Education Office. In no case, after matriculating at Vanderbilt, may a student apply to participate in an approved program for transfer credit through a different university, or through an external agency, and then seek to transfer that credit into Vanderbilt.

Students enrolled full time (i.e., carrying at least 12 credit hours) during a regular (fall or spring) semester are assumed to be engaged in full-time study at Vanderbilt. Such students are not permitted to take additional course work elsewhere, for transfer credit, during the semester. This includes online courses, as well as courses offered by nearby institutions.

Declaration of Major and of Second Major

Peabody students declare a major as part of the application process prior to admission. In their first semester, Peabody freshmen are expected to take course work recommended for the major into which they were admitted. Students wishing to change into a different major within Peabody cannot declare this change until March of their first year. Second majors must be declared no later than the second semester of the sophomore year. Also, during the sophomore year, students majoring in secondary education and special education will be required to declare their area of specialization or track.

Overlap in Course Work between Multiple Majors and Minors

Students pursuing multiple majors and/or optional minors are limited in the amount of course work that can be shared across their major and minor programs of study. If the major or minor is offered through a school other than Peabody, the amount of course work that can be shared between that major or minor and other majors or minors is determined by that school’s policies. For a major offered through Peabody College, at least 21 credit hours need to be unique to that major. That is, 21 hours within the major cannot be used to count toward any other major or minor. For a minor offered through Peabody College, at least 15 hours need to be unique to that minor.

Senior Re-examination

A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed prevents the student’s graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination.

The re-examination must be requested through the Office of the Associate Deans, and if approved, it is given immediately after the close of the last semester of the student’s senior year. A student who passes the re-examination will receive a D– in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course.

Grading System

Peabody College undergraduate students are on a four-point grading system. All work is graded by letters, interpreted as follows:

A: excellent

B: good

C: satisfactory

D: minimum pass work

F: failure

Under certain circumstances the following grades may be awarded:

W: withdrawal

P: pass (see Pass/D/Fail course provision)

M: missed final examination

I: incomplete in some requirement other than final examination

Plus and minus modifiers may be associated with the letters A through D as shown in the table below. Grade point averages are calculated using indicated grade point values.

Defined Grades with Corresponding Grade Points per Credit Hour

A	=4.0		C	=2.0
A-	=3.7		C-	=1.7
B+	=3.3		D+	=1.3
B	=3.0		D	=1.0
B-	=2.7		D-	=0.7
C+	=2.3		F	=0.0

Grade Point Average

A student's grade point average is obtained by dividing the grade points earned by the hours for which the student has registered, excluding courses taken for no credit, those from which the student has withdrawn, and those that are completed with the grade P.

Audit

Regularly enrolled Peabody College students who want to audit courses in any of the undergraduate schools of the university must obtain the written consent of the instructor to attend the class but do not register for the course for credit. Forms are available online: peabody.vanderbilt.edu/admin-offices/oas/downloads.php. No permanent record is kept of the audit. Regular students may audit one class each semester free of charge. In order to audit a course, the student must also be enrolled in at least one additional graded credit hour in the same semester.

Pass/Fail

Students may elect to take some courses in which they can receive the grade P (Pass). This grade is entered for the student enrolled under the P/F option who is awarded a grade of D- or higher. The grade P is neither counted in the grade point average nor used in the determination of honors. A failing grade will appear on the student record as F and will be counted in the student's grade point average.

To be eligible for the P/F option, the student must have completed two regular semesters at Vanderbilt and must not be on academic probation. No more than one course per semester may be taken on a P/F basis and no more than three total during the undergraduate career. No more than one course from any Liberal Education Core area (e.g., communications, humanities) may be taken under this option.

Note that neither courses taken for transfer credit (grade of "T") nor courses that are only offered on a pass/fail basis by the university (e.g., certain field experience courses) are counted against the number of courses that a student may voluntarily elect to take on a pass/fail basis, either within or across semesters.

The P/F option does not apply to courses in the following categories:

1. Liberal Education Core Courses that have been specifically identified by the student's primary major as needing to be taken on a graded basis.
2. For students with a single or double major, courses in the department(s) of the major(s) or other courses that may be counted for the major(s);
3. For students with an interdisciplinary major, courses listed in the student's plan of study;
4. For students planning an optional minor, courses in the department of the minor or those counting toward

an interdisciplinary minor.

Students taking a course on a P/F basis must be enrolled for at least 12 additional hours on a regularly graded basis. If a student drops a course and falls below 12 graded hours, the P/F course is converted automatically to a regularly graded basis.

Seniors who meet the above criteria and have permission to take fewer than 12 hours on a graded basis may take one course on a P/F basis in one of their last two semesters (e.g., a semester in which an internship or student teaching is not being taken). If the student does not graduate at the end of the senior year, the grade of P is automatically converted to the grade actually earned. When a student wishes to complete a major or minor in a field in which a grade of P has been received, the registrar converts this grade to the regular grade originally earned.

All P/F students are expected to meet normal course requirements (e.g., reports, papers, examinations, laboratory attendance) and are graded in a normal way. At the end of the semester, students enrolled on a P/F basis are awarded a regular grade. Any grade of D- or better is converted in the Student Records System to a P, while an F grade remains as awarded. A student taking a course on a P/F basis must meet the course prerequisites as set forth in this catalog.

Students may submit a Pass/Fail request form on or before the Pass/Fail declaration deadline. Students may change from a P/F basis to a regularly graded basis until the last day to withdraw from classes in a given term. All Pass/Fail deadlines are published in the Academic Calendar. The Pass/Fail form is available online: peabody.vanderbilt.edu/admin-offices/oas/downloads.php.

Credit Hour Definition

Credit hours are semester hours; e.g., a three-hour course carries credit of three semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements which exceed this definition. Certain courses (e.g., dissertation research, ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content.

These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester will be included in the course description.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or the default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available:

1. Incomplete (I): To be assigned only if the following conditions apply:
    i. An extenuating circumstance has emerged after the course withdrawal deadline
    ii. The student is up to date on all work prior to the extenuating circumstance
    iii. The student successfully completed at least 60% of the assigned work throughout the semester
    iv. The student requests the incomplete before the end of classes
    v. The student has been attending a significant majority of the classes
2. Missing final exam or final evaluation (M): To be assigned only if the following conditions apply:
    i. The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is

recorded.

ii. The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

Withdrawal

The symbol W (withdrawal) is assigned in lieu of a grade when a student formally withdraws from a class before the published mid-semester deadline. After that point, withdrawal will result in an F. A student who withdraws from school for reasons such as illness, unusual personal or family problems, and the like, may petition the Dean's Office for an authorized administrative withdrawal. If approved, the student will receive the grade W for courses in progress. A student who withdraws from school without an authorized administrative withdrawal receives the grade W or F depending upon the date of withdrawal. The grade W is not included in the calculation of the grade point average.

Dead Week

Because Peabody classes integrate theory and practice, many courses include significant semester-long group and individual projects that culminate in papers, presentations, simulations, or other activities at the end of the semester. Therefore, while instructors are discouraged from scheduling quizzes, tests, or short-term assignments for the last week of the semester, Peabody's "dead week" policy does not prohibit assignments during the week before finals.

Repeat Courses

If a course is repeated, only the last grade and credit hours earned will be used to calculate the grade point average and be creditable toward graduation. However, the original grade will appear on the transcript. Certain courses (e.g., special topics courses, directed study courses; see duplicate content section, below) may be repeated for credit when there is no duplication of content. Such courses may be repeated to replace a grade only when the content of the original and repeated courses is the same. Courses must be repeated in a graded status. This policy also applies to Advanced Placement credit. Courses taken at Vanderbilt may not be repeated elsewhere for grade replacement, nor may courses taken elsewhere be repeated at Vanderbilt for grade replacement.

Duplication of Course Content

It is the responsibility of the individual student to avoid duplication in whole or in part of the content of any courses offered toward the degree. Such duplication may result in the withdrawal of credit. This policy also applies to Advanced Placement credit.

Certain courses (e.g., ensemble, performance instruction, special topics, and directed study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester should not exceed 3 credit hours without permission.

Normal Course Load

Each semester, regular tuition is charged on the basis of a normal course load of 12 to 18 semester hours. No more than 18 or fewer than 12 hours may be taken in any one semester without authorization from the Associate Dean for Undergraduate Academic Affairs. There is an extra charge for more than 18 hours at the current hourly rate (contact Student Accounts).

Students permitted to take fewer than 12 hours are placed on academic probation, unless their light load is necessary because of health, family or outside employment. The one exception to this policy is that seniors who have fewer than 12 hours required for the completion of their degree; these students can take fewer than 12 hours in one of their last two semesters without penalty or requiring special permission.

Class Standing

To qualify for sophomore standing, a freshman must earn at least 24 hours with a grade point average of at least 1.800 and have completed two regular semesters. A freshman who fails to achieve sophomore standing at the end of two regular semesters is placed on probation and has one additional semester in which to qualify for sophomore standing. This additional semester must be the summer session at Vanderbilt. Normally, students who fail to qualify for sophomore standing in the third semester are dropped from the university.

A student qualifies for junior standing by earning 54 hours with a grade point average of at least 1.900 and having completed four regular semesters. Students who fail to qualify for junior standing at the end of two semesters after qualifying for sophomore standing are placed on probation and must qualify in an additional semester. This third semester must be the summer session at Vanderbilt. Normally, students who do not qualify for junior standing in this additional semester will be dropped from the university.

A student qualifies for senior standing by earning 84 hours with a grade point average of at least 2.000 and having completed six regular semesters. A student who fails to qualify for senior standing within two semesters of qualifying for junior standing will be placed on probation and must qualify in one additional semester. This additional semester must be the summer session at Vanderbilt. Normally, students who do not qualify for senior standing in this additional semester will be dropped from the university.

Alternate Track

Occasionally students find that it will be necessary to reduce their normal load due to medical reasons, varsity athletics, or other circumstances. The result is that they will accomplish the bachelor of science degree in nine or ten semesters instead of eight. In such cases, the student may request Alternate Track status. After discussing this option with their parents and faculty adviser, students petition the Associate Dean for Undergraduate Academic Affairs for permission. This normally takes place during the sophomore year. Additional information is available by contacting the Associate Dean for Undergraduate Academic Affairs.

Progress Evaluation

Students enrolled in Peabody College are expected to satisfy most Liberal Education Core requirements during the freshman and sophomore years. Although legitimate circumstances sometimes force the postponement of Liberal Education Core requirements, upper-level students are not expected to have a significant number of Liberal Education Core requirements outstanding. A student who, in the opinion of the faculty adviser, the department chair, or the associate dean for undergraduate academic affairs, is not making satisfactory progress toward meeting Liberal Education Core or other degree requirements may be reported to the Undergraduate Administrative Committee and is subject to being placed on academic probation by that committee. Students placed on academic probation for failure to make satisfactory progress toward a degree must remove the deficiency in the manner specified by the Administrative Committee.

Academic Probation and Dismissal

After achieving sophomore standing, the student may not be on academic probation for more than two semesters. A student whose academic record warrants a third semester of probation normally will be dropped from the university. Students will be placed on academic probation if any of the following conditions apply:

Freshmen

1. The student’s cumulative grade point average falls below 1.800. Probation is removed (assuming there is no other reason for the probation) when the student’s grade point average is raised to 1.800 or above.
2. The student fails to earn at least 12 hours in a regular semester as a freshman. Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress.
3. The student fails to achieve sophomore standing in the required two semesters. Probation is removed when the student achieves sophomore standing.
4. Freshmen who pass fewer than two regular courses in their first regular semester or who earn a grade point average lower than 1.000 have so seriously compromised their academic standing that they may be required to take an academic probationary leave of absence during the spring semester.

Sophomores

1. The student’s cumulative grade point average falls below 1.800. Probation is removed (assuming there is no other reason for the probation) when the student’s grade point average is raised to 1.800 or above, except that at the end of the second regular semester the student must qualify for junior standing.
2. The student fails to earn at least 12 hours in a regular semester as a sophomore. Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress.
3. The student is placed on probation by the Undergraduate Administrative Committee for failure to make satisfactory progress toward the degree. Probation is removed when the specified conditions are met.
4. The student fails to achieve junior standing in the required two semesters after achieving sophomore

standing. Probation is removed when junior standing is achieved.

Juniors

1. The student's cumulative grade point average falls below 1.900. Probation is removed (assuming there is no other reason for the probation) when the grade point average is raised to 900 or above, except that at the end of the second regular semester the student must qualify for senior standing.
2. The student fails to earn at least 12 hours in a regular semester as a junior. Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress.
3. The student is placed on probation by the Undergraduate Administrative Committee for failure to make satisfactory progress toward the degree. Probation is removed when the specified conditions are met.
4. The student fails to achieve senior standing in the required two semesters after achieving junior standing. Probation is removed when senior standing is achieved.

Seniors

1. The student's cumulative grade point average falls below 2.000. Probation is removed when the grade point average is raised to 2.000 or above.
2. The student fails to earn at least 12 hours in a regular semester as a senior, unless the semester is one in which the student needs fewer than 12 hours in order to complete the requirements for graduation (see section on Course Load, above). Probation is removed when the student earns at least 12 hours in a subsequent semester and/or is judged to be making satisfactory academic progress and/or completes the requirements for graduation.

Sudden Academic Insufficiency

Any student who fails by a wide margin to reach prescribed levels of academic achievement, either at the end of a semester or at mid-semester, or who has been placed on probation more than once is reviewed by the Peabody Undergraduate Administrative Committee. The Committee considers each case within the general guidelines for maintenance of satisfactory academic standing and may take any of several actions, among which are the following:

- The student may be placed on probation;
- The student may be advised to take a leave of absence or to withdraw from the university;
- The student may be required to take an academic probationary leave of absence;
- The student may be dismissed from the university.

Under certain circumstances, a student who has been formally dismissed may be readmitted to Peabody. The Peabody Undergraduate Administrative Committee must review and approve any request for readmission.

Appeal and Petition Process for Undergraduate Academic Matters

The procedures of the appeal process pertaining to academic matters within Peabody College are listed below. Please see the chapter "Student Accountability" in the Vanderbilt University *Student Handbook* for a description of the appeal process for non-academic matters.

Petitions for exceptions to academic policies, appeals of academic policy implementations by Peabody Dean's Office staff, and appeals of academic actions by the Undergraduate Administrative Committee (UAC) Chair (e.g., letters of dismissal) may be directed to the full UAC.

Petitions and appeals should be sent to the Peabody Office of Academic Services - peabodyacademicservices@vanderbilt.edu, Peabody Administration Building.

A student may ask the UAC to reconsider a decision if the student has new information to offer. The chair of the UAC will decide whether the full UAC will reconsider. Requests for reconsideration of UAC decisions should be sent to the above address.

A final, negative decision of the UAC may be appealed to the dean of Peabody College (at the above address), who may assign an associate dean to handle the matter on the dean's behalf. The dean or associate dean will consult with the UAC and other relevant faculty or staff as part of the review of the decision.

Further appeals beyond Peabody College should be directed to the Provost's Office.

Grade Appeals

A student who believes they have received an inappropriate final grade in a class can appeal that grade if they believe the grade is inappropriate for at least one of the following reasons:

1. The student is held to different standards than other students in the course.
2. The instructor in determining the final grade applied standards that departed from those outlined in the course syllabus.
3. The student believes that there is a clerical error in the calculation or reporting of the grade.
4. The instructor did not adequately consider the student's needs for officially sanctioned and communicated accommodations.

Ultimately, the grade can be appealed following the academic appeals process outlined for more general academic matters, directly above. However, several steps to attempt to resolve the grade should be taken, in turn, before an appeal is submitted to the Undergraduate Administrative Committee (UAC).

First, students and instructors are encouraged to resolve grade disputes informally. If an informal process fails, the student may formally appeal a final course grade by contacting the instructor in writing within ten (10) business days after the start of the following semester. The student's written appeal must include the grounds for the appeal (see conditions 1 through 4 listed above), the change in grade that is being requested, and evidence to support the student's case for a grade change. The instructor must inform the student of his/her decision in writing.

Second, if the student does not feel the matter has been resolved satisfactorily with the instructor, the student may petition the director of undergraduate studies in the department where the course is housed. The petition for reviewing the appeal must include the original written appeal, the instructor's written response, and the reason why the student is dissatisfied with the instructor's decision. The DUS will review the materials and assess the merits of the case. If the DUS finds no basis for the grievance, the petition will be dismissed and the student will be notified in writing. If the DUS determines that the grievance has merit, the DUS will work with the parties to seek a resolution. If the DUS is the course instructor, the student may directly petition the department chair in which the course is housed.

Third, if the case is dismissed by the DUS, and the student does not agree with the grounds for the decision, the student may petition the chair of the department where the course is housed. The student is responsible for providing the department chair with relevant case documentation, including the original written appeal, the written responses of both the instructor and the DUS, and an explanation as to why the student is dissatisfied with the DUS's decision to dismiss the case. The department chair will decide the merits of the case and provide written documentation to all parties as to the decision. If the case is determined to have merit, the department chair will seek a resolution among the parties involved, including the student, the instructor, and the DUS. If the department chair is the course instructor, the student may appeal the DUS's decision directly to the Undergraduate Administrative Committee using the more general academic appeals process outlined in the previous Appeals section.

Fourth, if the case is dismissed by the department chair and the student does not agree with the grounds for the decision, the student may appeal the department chair's decision to the Undergraduate Administrative Committee using the more general academic appeals process outlined in the previous Appeals section.

Student Leave of Absence

A student desiring a leave of absence should obtain the appropriate forms from the Peabody Office of Academic Services website: peabody.vanderbilt.edu/admin-offices/oas/downloads.php. All students are eligible, provided they have not been dropped by the university and are not dropped at the end of the semester during which application is made.

Leaves are granted for one or two semesters. Applications should be completed before the end of the fall semester for a leave of absence during the spring semester and before 15 August for a leave of absence during the fall semester (or for the academic year). If the leave is approved, the student must keep the Dean's Office informed of any change of address while on leave.

Should a student seek to transfer to Vanderbilt credit earned elsewhere while on a leave of absence, it is mandatory that permission be obtained **in advance** from the Dean's Office. Petitions for leaves of this type must be filed at least one month before the close of the preceding semester.

While the student is on leave, registration information will be emailed to his or her Vanderbilt email address. A student failing to register at the conclusion of the stated leave will be withdrawn from the university and must apply for readmission.

Students who wish to participate in a non-Vanderbilt program in the United States, abroad, or at sea should apply for a leave of absence for the relevant semester. To qualify for such a leave, a student must be in good standing at Vanderbilt with at least a 2.700 grade point average as of the date of application. Students must obtain prior approval for the leave of absence and for the credits to be taken in other programs if the credits are to be transferred to Vanderbilt. Final approval of leaves of absence always rests with the Dean's Office. See the section on Transfer Credit in this chapter.

Withdrawal from the University

Students proposing to withdraw from the university during any semester must report to the Associate Dean for Undergraduate Academic Affairs to initiate proper clearance procedures. Students are graded on the same basis as if withdrawing from a course. Students who withdraw before the end of the eighth week of classes receive a partial refund of tuition (see the section on Financial Information).

Graduation

Degree candidates must have completed satisfactorily all curriculum requirements, have passed all prescribed examinations, and be free of indebtedness to the university. Graduation requirements vary with the student's program of study but include a minimum of 120 hours (at least 60 of which must have been earned at Vanderbilt) and a minimum cumulative grade point average of 2.000. A degree candidate must also have a 2.0 cumulative grade point average in his or her major.

Commencement. The university holds its annual Commencement ceremony following the spring semester. A student completing degree requirements will be officially graduated, however, at the close of the semester or summer session in which the degree is earned, with such graduation recorded on the student's permanent record. Students who graduate at the close of the summer session or the fall semester preceding the spring commencement ceremony are encouraged to join spring graduates in the graduation ceremony in May. Those unable to do so may receive their diplomas by mail.

Academic Regulations in the College of Arts and Science

Honor System

All academic work at Vanderbilt is done under the Honor System. (See the chapter on Life at Vanderbilt.)

Class Attendance

Students are expected to attend all scheduled meetings of classes in which they are enrolled; they have an obligation to contribute to the academic performance of all students by full participation in the work of each class. At the beginning of the semester, instructors explain the policy regarding absences in each of their classes, and thereafter they report to the Dean's Office of Undergraduate Education in the College of Arts and Science the name of any student whose achievement in a course is being adversely affected by excessive absences. In such cases an associate dean, in consultation with the instructor, takes appropriate action, which may include dropping the student from the class; students dropped after the deadline for withdrawal (see Period for Withdrawal) receive the grade *F*. Class attendance may be specified as a factor in determining the final grade in a course, and it cannot fail to influence the grade even when it is not considered explicitly.

The last day before and the first day after official holidays are considered to be the same as any other day on which classes are scheduled. Assignments are made for classes scheduled on these days, and tests may be given in them. Students should take this fact into account in making travel plans.

The faculty of the College of Arts and Science recognizes that occasions arise during the academic year that merit the excused absence of a student from a scheduled class or laboratory during which an examination, quiz, or other graded exercise is given. Examples include participation in sponsored university activities (e.g., debate team, varsity sports), observance of officially designated religious holidays, serious personal problems (e.g., serious illness, death of a member of the student's family), and matters relating to the student's academic training (e.g., graduate or professional school interviews). While determination of the merit of a case is left primarily to the discretion of the individual instructor, conflicts arising from personal travel plans or social obligations do not qualify as excused absences. The Dean's Office of Undergraduate Education does not grant excused absences for students. For more information please visit as.vanderbilt.edu/academics/policies/absences.php.

The primary determination of whether a student's absence from class occurs for a reason that warrants rescheduling a graded exercise for that student is left to the judgment of the individual instructor. A standard of reasonableness should apply in making such judgments.

Except in cases of true emergency, student petitions for making up missed graded exercises must be made prior to the missed class, preferably at the beginning of the semester or at the earliest time thereafter when the need to be absent is known to the student. Faculty members retain discretion in the form and timing of makeup exercises or in devising other strategies for accommodating students.

The faculty of the College of Arts and Science authorizes the Office of the Dean to resolve through arbitration any cases that cannot be directly resolved between students and their instructors.

Classroom Recording Policy

The use of technologies for audio and video recording of lectures and other classroom activities is allowed only with the express permission of the instructor. In cases where recordings are allowed, such content is restricted to personal use only unless permission is expressly granted in writing by the instructor and by other classroom participants, including other students. Personal use is defined as use by an individual student for the purpose of studying or completing course assignments. When students have permission for personal use of recordings, they must still obtain written permission from the instructor to share recordings with others.

For students registered with the Office of Student Access Services and who have been approved for audio and/or video recording of lectures and other classroom activities as a reasonable accommodation, applicable federal law requires instructors to permit those recordings. Such recordings are also limited to personal use, except with permission of the instructor and other students in the class.

Course Registrations Normal Course Load

Each semester, regular tuition is charged on the basis of a normal course load of 12 to 18 semester hours. No more than 18 or fewer than 12 credit hours may be taken in any one semester without authorization of the Administrative Committee or an associate dean in 350 Buttrick Hall. (There is an extra charge for more than 18 credit hours at the current hourly rate.) First-year students may not take more than 18 credit hours in a semester.

Students permitted to take fewer than 12 credit hours are placed on probation, unless their light load is necessary because of outside employment or illness. During the summer session, there is no minimum course load. Summer loads exceeding 14 credit hours must be authorized by an associate dean in 350 Buttrick Hall.

Credit hours are semester hours; e.g., a three-hour course carries credit of 3 semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic

work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements that exceed this definition.

A student must be enrolled in a minimum of 12 credit hours to be classified as a full-time student.

Auditing

Regularly enrolled Arts and Science students who want to audit courses in any of the undergraduate schools of the university must obtain the written consent of the instructor to attend the class but do not register for the course for credit. Forms are available from the Dean's Office of Undergraduate Education in each school. No permanent record is kept of the audit. Regular students may audit one class each semester.

Taking Courses for No-Credit

Students may want to take elsewhere in the university courses that are not creditable toward the bachelor's degree. They may do so on a no-credit basis, attending classes, doing all the work of the course, and receiving a grade that is recorded on the transcript with a notation that it does not count toward the degree.

No-credit courses count in computation of the student's academic load and in computation of tuition, but not in computation of the grade point average. They also do not count toward the attainment of class standing.

Taking Courses for P/F Credit

Students may elect to take a limited number of courses on a Pass/Fail (P/F) basis. To enroll for a course on a Pass/Fail basis, students must have achieved at least sophomore standing, and must not be on academic probation. A minimum 12 graded credit hours is required.

A graduating senior who has permission to take fewer than 12 credit hours on a graded basis may take one course on a P/F basis in addition to the courses required for graduation. If the student does not graduate at the end of that semester, the *P* grade is automatically converted to the grade actually earned.

No more than 18 credit hours graded *P* may be counted toward the degree, and no more than one course per term may be taken P/F.

The P/F option does not apply to courses in the following categories:

1. Courses counted toward AXLE requirements;
2. Courses in the major field(s), other courses that may be counted toward the major(s), or courses required for the major(s);
3. For students with a defined interdisciplinary major, courses that are required for the major or that are eligible to count toward the major;
4. For students with an individually designed interdisciplinary major, courses listed in the student's plan of study;
5. For students planning an optional minor, courses in the minor field or those eligible to count toward an interdisciplinary minor;
6. Courses eligible to count toward the major or minor, regardless of whether the student has already satisfied major or minor requirements;
7. Courses that have been specifically excluded from the P/F option;
8. Courses taken previously.

Students may elect grading on a Pass/Fail basis or change from Pass/Fail to graded status until the deadline date for withdrawing from a course that is published in the Academic Calendar. Pass/Fail rules, requirements, and deadlines are not petitionable.

Those electing the Pass/Fail option must meet all course requirements (e.g. reports, papers, examinations,

attendance, etc.) and are graded in the normal way. Instructors are not informed of the names of students enrolled on a Pass/Fail basis. At the end of the semester, a regular grade is submitted for the student enrolled under the P/F option. Any grade of *D*– or above is converted in the Student Records System to a *P,* while an *F* will be recorded if a student enrolled under this option fails the course. The *P* grade is not counted in the grade point average nor used in the determination of honors. The grade of *F* earned under the Pass/Fail option is included in the calculation of the grade point average.

The grade for a class will be converted from *P* to the recorded letter grade if a student later declares a major or minor toward which that class counts. The recorded letter grade will be included in both the overall and the major or minor grade point average.

Undergraduate Enrollment in Graduate Courses

In the 4-digit course numbering system some courses may enroll undergraduate and graduate students simultaneously. Typically, there is a 3000- or 4000-level course for undergraduates and a matching 5000-level course for graduate students. Undergraduate students may enroll in the 3000- or 4000-level course of these pairs without special approval.

A qualified Vanderbilt University senior undergraduate may enroll in courses approved for graduate credit (those numbered 5000 and higher) and receive credit that, upon the student's admission to the Vanderbilt Graduate School, may be applicable toward a graduate degree. Vanderbilt cannot guarantee that another graduate school will grant credit for such courses. The principles governing this option are as follows:

1. Work taken under this option is limited to those courses approved for graduate credit (those numbered 5000 and higher) and listed as such in the Graduate School catalog, excluding thesis and dissertation research courses and similar individual research and readings courses. Courses approved for professional credit (i.e., many courses in the Divinity School, Law School, School of Medicine, School of Nursing, and Owen Graduate School of Management) may not be taken as part of this option.
2. The student must, at the time of registration, have a 3.00 average in all prior work to be counted toward the bachelor's degree, or a 3.00 average in all prior work to be counted toward the undergraduate major, or a 3.00 average in the preceding two semesters.
3. The total course load, including both graduate and undergraduate courses, must not exceed 15 credit hours in any semester.
4. No undergraduate student may enroll in more than one graduate course in any semester.
5. A registration form for undergraduate Arts and Science students wishing to exercise this option is available in the Dean's Office of Undergraduate Education. The interested student must use this form to obtain the written approval of the following:
    a. the academic adviser,
    b. the instructor of the course,
    c. and the director of graduate studies of the department or program.

Reserving Credit for Graduate School

1. Arts and Science students who are interested in reserving the credit earned in a graduate course (those numbered 5000 and higher) should consult with the Graduate School before attempting to register for graduate courses under this option.
2. The work must be in excess of that required for the bachelor's degree.
3. All of the above criteria apply under this option.
4. Students must declare their intention to reserve this credit on the registration form.
5. Permission for Vanderbilt undergraduates to enroll in graduate courses does not constitute a commitment on the part of any department to accept the student as a graduate student in the future.
6. An undergraduate student exercising this option is treated as a graduate student with regard to class requirements and grading standards.

Independent Study and Directed Study Courses

Independent study and directed study courses are intended primarily for students in their junior and senior years. Students may not take an independent study or directed study course that duplicates a regular course being offered in the same semester. Juniors or seniors who wish to take independent study or directed study courses must use the following procedure:

1. Students may initiate the independent study enrollment process in YES by clicking on the Individual Study

link on the student landing page.
2. Students must be registered in the independent study before the end of the change period.

Duplication of Course Content

It is the responsibility of the individual student to avoid duplication in whole or in part of the content of any course counting toward the degree. Such duplication may result in the withdrawal of credit.

Repeated Courses

Most courses offered in the College of Arts and Science may be repeated. If a course was failed the last time it was taken, credit is awarded when the course is repeated with a passing grade. If a course was previously passed, no new credit is earned. If a course previously passed is repeated and failed, credit originally earned for it is lost. In any case all grades earned are shown on the transcript. Under conditions explained below, the most recent grade in a course replaces the previous grade in determining credit, in computing the grade point average, and in verifying the completion of degree requirements and progress toward the degree.

The policy of grade replacement applies when all of the conditions below are met.

1. Failed courses may be repeated until passed; passed courses may be repeated only once.
2. Exactly the same course (same department and course number) is completed. A repeated First-Year Writing Seminar must have the same department and section number but cannot be repeated after completion of the second semester in residence.
3. The course is repeated on a regularly graded basis. This limitation applies even if the course was originally taken on a P/F basis.
4. The course is not one in independent study or directed study.
5. A non-W course is taken as repeat credit for a Writing version of the same course that was previously passed. The student loses credit for the writing requirement.
6. A W course is taken as repeat credit for a non-Writing version of the same course that was previously passed. The student earns credit for the writing requirement.
7. Certain courses (e.g., ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credit hours allowable per semester will be included in the course description.

In some instances, enrollment in a course similar to one already completed but with a different course number will result in the award of no credit for the second course and will have no effect on the grade point average. These are designated in the departmental course listings.

Courses taken in the College of Arts and Science may not be repeated elsewhere for grade replacement.

Students are cautioned that while repeating for grade replacement a course previously passed may improve their cumulative grade point average, it may also lead to a problem in meeting minimum credit hours requirements for class standing because no new credit is earned.

The Registration Process

A period is designated in each semester during which continuing students, after consultation with their advisers, register for work to be taken during the next term. The student’s adviser must release the advising hold in YES before the student can register.

Students are asked to plan their immediate and long-range educational programs with their advisers before registering and to consult their advisers when they make changes in their registration.

Students not meeting specified tuition payment deadlines are not permitted to register. See the chapter on Financial Information for details.

Before registering, students should check their own records carefully with respect to the following items:

1. AXLE requirements;

2. Major requirements;
3. Requirements of any optional minor(s) sought;
4. Course prerequisites.

Period for Withdrawal or Change from P/F Status

After the Change Period, and extending to the deadline published on the Undergraduate Academic Calendar, a student may withdraw from a course with approval from the student's adviser. Under certain conditions, withdrawal may also require approval from an associate dean in 350 Buttrick Hall. During the same period students may change their status from P/F to regularly graded or elect Pass/Fail status in a course.

These changes must be made with a Change of Course form, which is available online and which the student must submit to the Dean's Office of Undergraduate Education in Arts and Science. After the deadline, withdrawal is possible only in the most extraordinary circumstances, such as illness or unusual personal or family problems, and in all cases must be approved by the Administrative Committee. After the withdrawal deadline, change from P/F to regularly graded status is not permitted.

Students who withdraw from a course after the change period receive the grade *W* (withdrawal). This grade is not used in the computation of the grade point average or class rank. A student who defaults in a course without dropping or withdrawing from it receives the grade *F*.

Minimum Graded Credit Hours

A course may not be dropped without authorization of the Administrative Committee or an associate dean if the student is left with a course load of fewer than 12 credit hours on a regularly graded basis.

Mid-Semester Progress Reports

At the end of the seventh week of each semester, instructors assess the progress of all students in their classes and report those whose work at that point is deficient or whose work is being harmed by excessive absences. Grades to be reported are *C–, D+, D, D–, F,* and *I* (for incomplete, meaning that some work due by that point has not been submitted). Instructors may combine with one of these grades or assign separately a notation of excessive absences from a class. Reports of these deficiencies are posted in the Academic Record application in YES. Grades given at mid-semester do not become part of the permanent record but are intended to warn students about performance judged unsatisfactory.

Examinations

Each department establishes procedures for evaluating student performance, and normally the method of evaluation is the responsibility of the course instructor. At the beginning of the semester instructors should clearly state the evaluation procedures, including types of examinations, to be used in their courses. Students should have adequate opportunity during the semester to demonstrate their knowledge of the subject matter and should be given an indication of their progress in the course prior to the deadline for dropping courses. Instructors are cautioned against placing excessive weight on the final examination when determining a student's grade in a course.

Dead Week

No examinations of any type—including quizzes, hour examinations, and portions of final examinations—are allowed during the last week of classes; papers and in-class presentations are permitted during dead week. The Administrative Committee may grant special permission to the instructor in charge of a course to give laboratory examinations during the last regular laboratory period of the last week of classes. The last week of classes is defined as the last seven calendar days preceding the end of classes. If, for example, classes end on Tuesday, then the "dead week" begins the preceding Wednesday and lasts through Tuesday. Students should notify the Dean's Office of Undergraduate Education of any violation.

Final Examinations

The primary and alternate final examination schedules issued each semester allow two hours for a final examination in each course. Each in-class final examination must be given at the time indicated on the primary schedule. The alternate schedule is used only if the instructor decides to give an in-class examination at two times. The final examination period lasts for about a week and a half.

Alternatives to the standard in-class final examination are permitted at the instructor's discretion. Some examples are take-home examinations, oral examinations, and term papers; there need not be a final examination if adequate evaluation procedures have been used during the term. A take-home or oral examination should make approximately the same demand on a student's time as an in-class examination and should be conducted during the final examination period. A take-home examination must be distributed at the last regular class meeting and must be completed by either the primary or the alternate examination date, whichever is later.

All examinations are conducted under the Honor System.

The instructor's record of grades given during a course and any final examination papers not returned to students must be kept on file by the instructor for the first month of the semester following the conclusion of the course. For spring semester and summer session courses, this rule means the first month of the fall semester.

Monitoring these regulations is the responsibility of the departments, under the supervision of the Dean's Office of Undergraduate Education. Variations from the regulations—such as changing the time of an in-class final examination for an entire class—are allowed only on approval of the Administrative Committee.

Comprehensive Examination

Any department or interdisciplinary program may require a comprehensive examination of its major students as a condition of graduation.

Senior Re-examination

A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed prevents the student's graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination. The re-examination must be requested through the Dean's Office of Undergraduate Education, and if approved, it is given immediately after the close of the last semester of the student's senior year. A student who passes the re-examination will receive a *D–* in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course.

Credit by Examination

In certain circumstances, students may be awarded course credit by departmental examination. (This procedure is distinct from the award of credit through the College Board Advanced Placement Tests taken prior to the student's first enrollment.)

Students who wish to earn credit by departmental examination should consult the Dean's Office of Undergraduate Education in Arts and Science concerning procedures. To be eligible, students must be carrying a minimum of 12 credit hours and be in good standing.

Students must obtain the approval of the chair of the department that is to give the examination and the instructor designated by the chair. Students may earn up to 18 hours of credit by any combination of credit through advanced placement examinations and credit by departmental examination. Students may earn up to 8 hours of credit by examination in any one department. Students may attempt to obtain credit by examination no more than twice in one semester, no more than once in one course in one semester, and no more than twice in one course. Students may not repeat a course for grade replacement under the credit by examination procedures. Credits earned by credit by examination may not be counted toward AXLE.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after learning the results of the examination.

Students enrolled for at least 12 credit hours are not charged extra tuition for hours earned through credit by examination, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no-credit courses and courses dropped after the Change Period. Students in this category must pay a $50 fee for the cost of constructing, administering, and grading the examination. Since this cost has already been incurred, students who refuse the credit hours and grade are charged the $50 fee nevertheless.

Full-time students with a tuition load exceeding 18 credit hours and students taking fewer than 12 credit hours pay tuition at the regular rate with no additional fee.

Grades and Credit Grade Reports

Students have access to their grade reports on the Academic Record in YES. Notifications are sent to students in their last two semesters, showing total credit hours, grade point average, and degree requirements still to be met. Students should examine their Degree Audit carefully and discuss it with their advisers. Any errors should be reported immediately to the Dean's Office of Undergraduate Education (see also Change of Grade).

Grading System

A: excellent

B: good

C: satisfactory

D: minimum pass work

F: failure

Under certain circumstances the following grades may be awarded:

W: withdrawal

P: (see P/F Course Provision)

M: absent from final examination

I: incomplete in some requirement other than final examination

MI: absent from final examination and incomplete work

IP: first semester grade for two-semester Honors sequence

Plus and minus modifiers may be associated with letter grades *A* through *D* as shown in the table below. Grade point averages are calculated using indicated grade point values.

Defined Grades with Corresponding Grade Points Per Credit Hour

A	4.0	C	2.0
A-	3.7	C-	1.7
B+	3.3	D+	1.3
B	3.0	D-	1.0
B-	2.7	D	0.7
C+	2.3	F	0.0

Grade Point Average

A student's grade point average is obtained by dividing the quality points earned by the credit hours for which the student has registered, excluding courses taken for no credit, those from which the student has officially withdrawn (see Withdrawal Period under Registration above), and those completed with the grade *P*.

In no case is the grade point average affected by transfer credit. No course at another institution in which a grade below *C*– was received, or which was taken on a Pass/Fail basis, is credited toward the degrees awarded by the College of Arts and Science.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or the default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available:

a. Incomplete (I): To be assigned only if the following conditions apply:
    i. An extenuating circumstance has emerged after the course withdrawal deadline
    ii. The student is up to date on all work prior to the extenuating circumstance
    iii. The student successfully completed at least 60% of the assigned work throughout the semester
    iv. The student requests the incomplete before the end of classes
    v. The student has been attending a significant majority of the classes
b. Missing final exam or final evaluation (M): To be assigned only if the following conditions apply:
    i. The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is recorded.
    ii. The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

MI: Missing a Final Examination and Other Work

The grade for a student who misses a final examination and whose work is also incomplete in other respects is reported as *MI*. This grade may not be turned in without prior authorization by an associate dean. It is the responsibility of the student who misses a final examination, in consultation with the professor of the course, to notify the Dean's Office of Undergraduate Education immediately.

F: Failure

The grade *F* indicates failure. All *F*'s are counted in the computation of grade point averages, except when a course is repeated and is subsequently passed. In this case the latest grade is used for computation of the grade point average (but the grade originally earned is not removed from the transcript). A course in which the grade *F* is received must be repeated as a regular course if credit is to be given. It may not be repeated as a course in independent or directed study, under the procedures for credit by examination, or on a P/F basis.

Change of Grade

A grade reported and recorded in the Office of the University Registrar may be changed only upon request of the instructor with the approval of the Administrative Committee. The committee will approve such a change only on certification that the original report was in error.

Transfer Credit

It is the student's responsibility to provide all of the information required by the Office of the University Registrar to assess the program for which transfer of credit is requested. Work presented for transfer must be from a regionally accredited college and is subject to evaluation in light of the degree requirements of the College of Arts and Science. Credit will not be awarded for independent study, physical education, or dance performance courses.

Work transferred to Vanderbilt from another institution will not carry with it a grade point average. No course in which a grade below *C*– was received, or which was taken on a Pass/Fail basis, will be credited toward a degree offered by the College of Arts and Science. The question of credit in the College of Arts and Science for previous work done at another institution must be settled in advance of the student's first registration.

Transfer students must spend at least four full semesters, including the last two semesters, enrolled in the College of Arts and Science. They must earn at least 60 credit hours and complete at least one writing course in fulfillment of the writing requirement while so enrolled.

Residence Requirement

A minimum of four normal semesters (at least 60 credit hours), including the last two semesters (at least 30 credit hours), must be spent in residence in the College of Arts and Science unless an exception is made by the Administrative Committee. Students transferring from other schools of the university must spend the last year (at least 30 credit hours) in residence in the College of Arts and Science.

Summer or Winter Work at Another Institution

Students enrolled in the College of Arts and Science may receive transfer credit for a maximum of two courses taken during summer or winter at a regionally-accredited institution. To qualify for such credit, the student must be in good academic standing and must obtain prior authorization from the appropriate department by submitting courses through the Transfer Credit Submission application in YES. A detailed course syllabus is required in order for a course to be evaluated. Such courses cannot fulfill AXLE requirements, count as part of the last 30 credit hours in residence, duplicate a course taken previously, or be taken on a Pass/Fail or similar basis. Students cannot transfer credit for summer or winter work from outside of the country of their permanent home address.

Senior-in-Absentia

A student who wishes to earn a baccalaureate degree in the College of Arts and Science in absentia must have (a) completed the AXLE requirements and all major requirements; (b) earned at least 105 credit hours and a grade point average of 2.000 with at least 60 credit hours earned in a minimum of four semesters of residence in the College of Arts and Science; (c) been accepted at a professional or graduate school where, during the first year, the remaining credit hours needed for graduation can be earned; and (d) obtained the approval of the major department and an associate dean of the College of Arts and Science. Students who have completed fewer than 105 credit hours may petition the Administrative Committee for special consideration.

The limitation on credit hours outside the College of Arts and Science applies to all bachelor of arts candidates.

Students in the senior-in-absentia program pay a minimum semester tuition charge to the College of Arts and Science (see Financial Information).

Student Leave of Absence

A student desiring a leave of absence should obtain instructions from the Dean’s Office of Undergraduate Education in the College of Arts and Science. All students who have completed one regular (fall/spring) semester at Vanderbilt are eligible, provided they have not been dropped by the university and are not dropped at the end of the semester during which application is made. Students may take a leave no more than twice during their career in the College of Arts and Science.

Leaves are granted for one semester or for a year. Applications should be completed before the end of the fall semester for a leave of absence during the spring semester, and before August 15 for a leave of absence during the fall semester (or for the academic year). If the leave is approved, the student must keep the Office of the University Registrar informed of any change of address while on leave.

A student who takes a medical leave after mid-semester is expected to be on leave for the following regular semester as well. A student who plans to return from medical leave must submit appropriate documentation to the Dean’s Office of Undergraduate Education and the Office of Student Care Coordination.

A student in good standing who seeks to transfer to Vanderbilt credit earned elsewhere while on leave of absence must obtain permission in advance from the Office of Undergraduate Education. Requests for leave of

absence for purpose of semester study away may be allowed if the semester study-away institution is domestic to the student. Requests for leave of absence plus semester study away are not allowed if the semester study-away institution is international to the student.

Registration information is emailed to students on leave of absence. A student failing to register at the conclusion of the stated leave will be withdrawn from the university and must apply for reinstatement.

Withdrawal from the University

Students proposing to withdraw from the university during a regular term must report to the Dean's Office of Undergraduate Education in the College of Arts and Science to initiate proper clearance procedures. If withdrawal from the university is officially authorized, the student will receive withdrawal grades on the same basis as a student withdrawing from a particular course or courses. (See the section on Period for Withdrawal under Registration above.)

Change of Address

Students are responsible for keeping the university informed of their correct mailing addresses, both school and home. They should notify the university, through the Office of the University Registrar, online or in writing, of any address changes as soon as possible. They are provided an opportunity to review address information at registration. The university will consider notices and other information delivered if mailed to the address on file in the Office of the University Registrar.

Academic Discipline

The College of Arts and Science requires each student to maintain an academic record that will permit graduation according to a specified schedule. Students are considered to fall short of the expected rate of progress when

1. They pass fewer than 12 credit hours in a semester or have a semester grade point average lower than 1.500; or
2. In a summer they take 12 or more credit hours but pass fewer than 12 credit hours or earn a grade point average lower than 1.500; or
3. They fail to achieve sophomore, junior, or senior standing within the time allowed; or
4. They accumulate more than two probations after the freshman year, in which case they will normally be dropped from the university; or
5. As first-semester freshmen they pass fewer than two courses or earn a semester grade point average lower than 1.000, in which case they may be required to take a probationary leave of absence; or
6. As first-semester freshmen they earn fewer than 9 credit hours or a semester grade point average lower than 1.500, in which case they may be offered a choice (see Semester Requirements below).

Any student who falls somewhat short of the prescribed levels of academic achievement is normally placed on probation. Any student who fails by a wide margin to reach these levels or who has been placed on probation more than once is reviewed by the Administrative Committee, and may be dropped from the university without having previously been placed on academic probation. The committee considers each case within the framework of the guidelines outlined below and may take any of several actions, among which are the following:

1. The student may be placed on probation;
2. The student may be advised to take a leave of absence or to withdraw from the university;
3. The student may be required to take a leave of absence;
4. The student may be dropped from the university.

Semester Requirements

Full-time students are expected to earn each semester at least 12 credit hours and a minimum grade point average of 1.500. Students who fall short of these levels are normally placed on probation. Students are removed from probation after earning at least 12 credit hours and a semester grade point average of 1.500 or better, assuming they have fulfilled the requirements for class standing stated below.

First-year students who pass fewer than two regular courses in their first regular semester or who earn a semester grade point average lower than 1.000 have so seriously compromised their academic standing that they may be required to take a probationary leave of absence until the beginning of the following fall semester.

First-year students who earn fewer than 9 credit hours or a grade point average lower than 1.500 in the fall may, at the discretion of the Administrative Committee, choose a probationary leave for the spring and return the next fall with two semesters in which to qualify for sophomore standing.

A student on probationary leave may not earn credit at another institution for transfer to Vanderbilt. In appropriate cases the Administrative Committee may prescribe conditions that must be satisfied before the student returns from a probationary leave. Students who do not choose to return at the end of a probationary leave but want to return later are required to apply for reinstatement.

After their first year, full-time students may not be placed on probation more than twice (continuance on probation for a second semester counts as another probation). If a student's performance is deficient a third time, the student is dropped from the university.

Students who have been authorized to carry fewer than 12 credit hours because of illness or outside employment may be placed on academic probation if their work is deemed unsatisfactory by the Administrative Committee; they are removed from probation when the committee deems their work satisfactory. If they are not removed from probation after a reasonable period of time, such students are dropped.

The internal record of a student dropped from the university under these regulations shows the notation "Dropped for scholastic deficiency."

Class Standing

The Administrative Committee determines how many semesters will be allowed for each part-time student to attain sophomore, junior, or senior standing.

The internal record of a student dropped from the university under these regulations shows the notation "Failed to qualify for class standing."

Sophomore Standing

A student qualifies for sophomore standing upon completion of 24 credit hours of work with a grade point average of at least 1.800, completion of two regular semesters (fall or spring), and completion of the first-year writing requirement: successful completion of English 1100 if required and successful completion of a First-Year Writing Seminar (numbered 1111 in various disciplines). First-year students who fail to qualify for sophomore standing in two semesters are placed on probation and must have the permission of the Administrative Committee to register for a third semester. The third semester must be the summer semester at Vanderbilt. Normally, students who do not qualify for sophomore standing during this third semester are dropped from the university.

Junior Standing

A student qualifies for junior standing upon completion of 54 credit hours of work with a grade point average of 1.900, completion of four regular semesters (fall or spring), and completion of a W course at any level (other than ENGL 1100 or a First-Year Writing Seminar). Sophomores who fail to qualify for junior standing within two semesters after qualifying for sophomore standing are placed on probation and must have the permission of the Administrative Committee to register for another semester. This additional semester must be the summer semester at Vanderbilt. Normally, students who do not qualify for junior standing in this additional semester are dropped from the university.

Senior Standing

A student qualifies for senior standing upon completion of 84 credit hours of work with a grade point average of

2.000 and completion of six regular semesters (fall or spring). Juniors who fail to qualify for senior standing within two semesters after qualifying for junior standing are placed on probation and must have the permission of the

Administrative Committee to register for another semester. This additional semester must be the summer semester at Vanderbilt. Normally, students who do not qualify for senior standing in this additional semester are dropped from the university.

Seniors who fail to maintain a minimum grade point average of 2.000 are placed on probation and must have the permission of the Administrative Committee to register for another semester.

Petitions and Appeals

The Administrative Committee of the College of Arts and Science entertains petitions from currently enrolled students for exceptions to academic regulations. Any student subject to action by the Administrative Committee may appeal that action to the committee in writing. Further appeals from decisions of the committee follow standard university policies as described in the *Student Handbook.*

Returning to the College

Students on leave of absence return to the university at the end of the leave. If they do not return at that time and want to return later, they must apply to the Office of the University Registrar for reinstatement. Students who are advised to withdraw from the university determine whether or not to return in consultation with the Dean's Office of Undergraduate Education. Students who have been dropped may apply to the Office of the University Registrar for reinstatement; in most cases reinstatement is not granted unless there has been an intervening period of at least a year. The Office of the University Registrar forwards all documents to the Administrative Committee, which considers each case on an individual basis. Reinstatement is competitive, and there is no assurance that it will be granted.

Students reinstated after having been advised to withdraw or after having been dropped are automatically on final probation. If they fail to regain good standing and to maintain it until graduation, they are dropped again with little prospect for reinstatement. Application deadlines for reinstatement are as follows: July 15 for the fall semester, November 15 for the spring semester, and April 1 for the summer session.

Additional Programs in the Blair School of Music

Minor Areas and Concentrations

Teacher Education

Blair-to-Owen

Minor Area and Concentration Requirements

Concentrations and the minor in a second instrument are open to bachelor of music and bachelor of musical arts degree students. Honors in Musicology and Ethnomusicology is open to all undergraduates. Deadline to declare a concentration or minor is the fifth day of the first semester of the senior year. For the integrated studies major, the deadline to declare a required concentration is the midpoint (on the last day students may withdraw from classes) of the fifth semester in residence.

Concentration in Collaborative Arts

Concentration in Composition

Concentration in Conducting

Concentration in Ethnomusicology

Concentration in Jazz

Concentration in Multiple Woodwinds

Concentration in Music and the Mind

Concentration in Musicology

Concentration in Pedagogy

Concentration in Music Theory

Honors in Musicology and Ethnomusicology

Minor Instrument

CONCENTRATION IN COLLABORATIVE ARTS. 24 hours

Musicology/Ethnomusicology: MUSL 3220 or 3221

Performance: HRPS 1100 (1 hour), MUSO 4970 (1 hour)

Other Music: MUSO 1400, 1410, 1420; MREP 3310 or 3311, 3330; MUSO 3850 (2 hours in vocal coaching or chamber music literature)

Ensemble: One semester chosen from MUSE 1010, 1020, or 2120; one semester of MUSE 2300; one semester of MUSE 1030 (as apprentice pianist); one semester each of MUSE 2210, 2230, 2310, 2320, and 2330; and four additional semesters of MUSE 2210, 2230, 2310, 2320, 2330, or other with adviser's approval

Liberal Arts: Must include one semester each in two different languages chosen from Italian, German (GER 1105 is recommended), or French. Students with previous study in one of these must study the other two.

CONCENTRATION IN COMPOSITION. 20 hours minimum

Prerequisite: COMP 1100; submission of portfolio of three representative works, with recordings; department approval.

Composition: 4-6 hours over a minimum of 4 semesters in COMP 1150

Choice of four from MUTH 3110, 3120, 3130, 3140, 3170, 3200, 3210, 3220, 3222

Choice of two (6-7 hours) from ARTS, CMA, ENGL 1250W, ENGL 1290, HART 1105 or higher, THTR

CONCENTRATION IN CONDUCTING. 32 hours minimum (20 hours in music)

Department approval required before MCON 3030, 3050 and 3051. Criteria to include evidence of prior experience in conducting. Integrated Studies students interested in conducting should declare the individually-designed concentration in the fifth semester, pending faculty approval to declare the conducting concentration before the seventh semester. Other B.Mus. or B.Mus.Arts students may declare the conducting concentration in the fifth semester, but will need departmental consent for MCON 3050 and entrance into the senior year of the concentration. Departmental approval is required before 3030, 3050 and 3051. Criteria to include evidence of prior experience in conducting.

Composition/Theory: MUTH 3450, 3460, 3470, 3480; MUTH 3110

Conducting: MCON 3000 (required in music core); MCON 3010 or 3020; MCON 3030; MCON 3040, 3041, 3042, 3043; MCON 3050, 3051

Other Music: MWEL 1140 or 2120

Liberal Arts: Four semesters of one language, selected from French, Italian, German, or Russian

CONCENTRATION IN ETHNOMUSICOLOGY. 20 hours minimum

Department approval required

Musicology/Ethnomusicology: Choice of MUSL 3000-level or above, except MUSL 3100, 9-12 hours
Composition/Theory: Choice of MUTH 3140, MUTH 3200, or 3210, 2-6 hours

Cognate Area or Foreign Language, 6-16 hours:

1. Cognate area in AADS, AMER, ANTH, CMA, EUS, GSS, HIST, LAS, PHIL, SOC, or other area with department approval, 6-9 hours, or

2. Foreign Language, 6–16 hours, 4 semesters:
    - Introductory-level competence, or one-year May be satisfied through placement exam, AP/IB credit, or for-credit course work. Students who test out of introductory-level competence need only 2 semesters (minimum 6 hours) of 2000-level or above, 6-8 hours, 2 semesters.
    - 2000-level or above language and/or culture courses, 6-8 hours, 2 semesters.

CONCENTRATION IN JAZZ. 20 hours minimum

Department approval required for admission into the concentration. B.Mus. and B.Mus.Arts students are eligible to audition for a faculty committee no earlier than the end of their first year.

Literature/History: MUSL 1620

Composition/Theory: MUTH 3120; JAZZ 1150

Other Course Work: JAZZ 1210, 1220, or 1230 (2 semesters, 2 hours); MUED 2140

Performance: JAZZ 1100 (minimum of 4 semesters/4 credit hours); MUSO 4972 (in addition to recital required for major) or MUSO 3850 Senior Project (1 hour)

Ensemble: MUSE 1310, 1320, or 1330 (minimum of 4 semesters/credit hours)

CONCENTRATION IN MULTIPLE WOODWINDS. 23 hours

Department audition, consisting of performances on both secondary instruments, required before the end of the second semester in residence. Not available to performance majors. Three-, four-, and five-instrument options are possible.

Composition/Theory: MUTH 3110

Performance: 1100-level study in at least two secondary instruments, 4 semesters and 8 credit hours for each instrument; MUSO 4970, with repertoire for both primary and secondary instruments; corequisite performance classes required when enrolled in applied study; each secondary instrument must be performed in a large ensemble for at least one semester (instead of primary instrument)

Other Music: MPED 3140 in primary instrument, recommended in secondary instrument(s); MREP 2140 in primary instrument

CONCENTRATION IN MUSIC AND THE MIND. 23 hours

This concentration satisfies the area of discrete competence for the bachelor of musical arts. By using free and academic electives, this concentration could be completed in addition to a minor in neuroscience or psychology.

It is also available to B.Mus. students, but it will not satisfy the music hours requirement for integrated studies.

Liberal Arts: NSC 2201, PSY 1200, PSY 3750, PSY 3120, NSC 3269, PSY 3890, PSY-PC 3650 (PSY-PC 2110 recommended, NSC 3274 optional)

Aural Skills: MUTH 3450, MUTH 3460

CONCENTRATION IN MUSICOLOGY. 20 hours minimum

Department approval required

Musicology/Ethnomusicology: Choice of MUSL 3000-level or above, except MUSL 3100, 9-12 hours

Composition/Theory: Choice of MUTH 3140, MUTH 3200, or 3210, 3-6 hours

Cognate Area or Foreign Language, 6-16 hours:

- Cognate area in AADS, AMER, ANTH, CMA, EUS, GSS, HIST, LAS, PHIL, SOC, or other area with department approval, 6-9 hours, or
- Foreign Language, 6–16 hours, 4 semesters:
    - Introductory-level competence, or one-year May be satisfied through placement exam, AP/IB credit, or for-credit course work. Students who test out of introductory-level competence need only 2 semesters (minimum 6 hours) of 2000-level or above, 6-8 hours, 2 semesters.

- 2000-level or above language and/or culture courses, 6-8 hours, 2 semesters

CONCENTRATION IN PEDAGOGY. 19 or 20 hours

Music Cognition course work: MUSO 3100 or MUSO 3850 (independent study in teaching Aural Skills, 2 hours)

Instrumental Literature: Choice of MREP 2110, 2120, 2121, 2130, 2140, 2141, 3310, 3311, 3330, or MUSO 3850 (in field, 2 hours)

Pedagogy course work: Choice of MPED 3110, 3120, 3121, 3125, 3127, 3128, 3129, 3130, 3140, 3142, 3144 or MUSO 3850 (in field, 2 hours), and Pedagogy Practicum MPED 3870 (2 hours)

Pedagogy Internship: MPED 3880 (2 semesters, 6 hours)

Senior Recital: MUSO 4970

Liberal Arts: Must include PSY-PC 1250 and 2600 (Peabody courses)

CONCENTRATION IN MUSIC THEORY. 18-20 hours

Departmental approval required for admission to this concentration.

Composition/Theory: MUTH 3200, MUTH 3210 or 3220, and minimum of 13-15 hours in COMP 1100 and/or any 3000-level MUTH courses

HONORS IN MUSICOLOGY AND ETHNOMUSICOLOGY. 9 hours

Departmental approval required for admission to this program; see regulations in the Honors section of the catalog.

Thesis: Departmental approval of a formal thesis prospectus, MUSL 4998-4999 (6 hours), and successful completion of an oral defense.

Course work: One course beyond the MUSL core chosen from MUSL 3220-3240, 3160, 2610, or 3890 (3 hours)

The MUSL credit hours of this program may double-count in the concentration in musicology or ethnomusicology.

MINOR INSTRUMENT. 10 hours

Ensemble: Participation on minor instrument (including voice) in two separate ensembles in addition to major instrument requirement, as assigned (2 hours)

Performance: Minimum of four semesters (8 hours) in a second performance area (any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, voice, or baroque instrument). Students must meet minimum performance standards, earning a total of 8 hours.

Consent of instructor and department chair required. NOTE: Composition majors may satisfy the primary major ensemble and performance instruction requirements with courses also used to fulfill the minor instrument requirements.

Teacher Education

The Blair School and Peabody College offer a program for students interested in teacher licensure. Students completing this program earn the bachelor of music (B.Mus.) majoring in the integrated studies/teacher education track for four years, and the master of education (M.Ed.) in the fifth year to complete professional education requirements. During the junior year, application is made to Peabody College. The M.Ed. work requires one calendar year, June–May. Students may elect to work toward licensure in either instrumental/general or vocal/general music, based on their interest and ability to perform at a level sufficient for placement in the appropriate performing ensemble. The curriculum includes a strong music performance emphasis; a solid foundation in musicology/ethnomusicology, theory, and the liberal arts; undergraduate and graduate courses in psychology and education; and practica (practical experience) four of the five years of study, with at least 15 weeks of student teaching in field placements. Practica constitute a wide variety of grade K-12 experiences,

including public school, private school, and Blair Academy programs such as Suzuki strings, Blair Children's Chorus program, and the Nashville Youth Orchestra program. Students complete the same music core requirements as any other B.Mus. candidate. The liberal arts core is adapted to fulfill state licensure requirements.

Junior Mid-Program Review [Screening I]

All students admitted to this program at matriculation must be formally continued through a process called Junior Mid- Program Review. Criteria for this review are listed below. Students not approved can complete the general integrated studies major.

Faculty evaluation of a student's qualifications for continuation in a teacher education program includes academic, performance, and disposition factors such as the following:

1. Dependability (as evidenced by good attendance and academic performance in classes and practica)
2. Professional and ethical behavior (honesty, acceptance of responsibility, emotional maturity)
3. Attitude and interpersonal skills (including the ability to work with children and with peers)
4. Academic competence

Specific Criteria

1. A minimum cumulative grade point average of 2.500.
2. Successful completion (C- or better) of EDUC 1220 and SPED 1210
3. Successful completion (C- or better) of MUTH 2200, MUTH 2220, MUSL 2200W and MUED 3870
4. Successful completion (C- or better) of two additional Vanderbilt courses which count towards the Liberal Arts
5. Departmental interview

General Criteria

These criteria rest on the professional judgment of appropriate faculty members, who are polled following the student's application for Junior Mid-Program Review.

1. Endorsement by the appropriate faculty that the applicant has demonstrated the academic and musical qualifications expected of Vanderbilt teacher education
2. Endorsement by the appropriate faculty that the applicant has demonstrated the personal and character traits expected of Vanderbilt teacher education

Procedure for Junior Mid-Program Review [Screening I]

Students apply for continuation in the teacher education program [Screening I] through the Blair program director. Applications must be submitted in the fall semester of the junior year. Deadline for submitting applications for Junior Mid-Program Review [Screening I] is 1 October. A departmental interview is then held with each candidate to review the student's academic progress and disposition criteria of dependability, professional and ethical behavior, attitude, and interpersonal skills.

Fifth Year Curriculum

SUMMER		Semester hours
EDUC 6510	Principles of ELL Education	3
EDUC 6010	Psychological Foundations of Education (or an approved elective course)	3
EDUC 6310	Teaching in Secondary Schools	3
MUED 5000	Philosophical Foundations and Contemporary Issues in Music Education	3
FALL		
EDUC 6300	Social/Philosophical Aspects of Education	3
EDUC 6320	Practicum in Music Education	1
EDUC 7960	Independent Study in Music (may be taken in summer; requires approval of Blair associate dean)	2
or MUED 5100	Advanced Studies for the Wind Band Conductor	
MUED 5010/5020	Methods and Materials in Teaching Music, Instrumental or Vocal/Choral	3
MUED 5030	Methods and Materials in General Music, PreK through 12	3
SPRING		
EDUC 7974	Internship in Teaching: Music	6
EDUC 7975	Internship Seminar: Music	1
	(A capstone project is also required)	
	Total hours:	31

Admission to Student Teaching [Screening II]

The semester prior to the one in which a student plans to student teach, he/she must apply for student teaching (Screening II) and request student teaching placements. The student should be enrolled in any remaining required prerequisite courses. Applications will be processed in the Office of Teacher Licensure, and if eligible, forwarded to the appropriate faculty for review and vote. It is the student's responsibility to complete the application at the appropriate time.

The criteria that must be met for a student to be admitted into student teaching are as follows:

1. Specific Academic Criteria
    1. Formal admission to a teacher education program for initial licensure granted
    2. Approved program of studies and licensure audit forms on file
    3. Successful completion of all courses and field work required and prerequisite for student teaching
    4. Minimum cumulative grade point average of 3.0 (4.0 scale)
    5. Successful completion of standard first aid and CPR training (submit certificate copies prior to or with the Screening II application)
2. Specific Faculty Evaluative Criteria
    1. Dependability (as evidenced by good attendance in classes and practica and the completion of required assignments and procedures on time)
    2. Professional and ethical behavior (honesty, acceptance of responsibility, emotional maturity, etc.)
    3. Attitude and interpersonal skills (including the ability to work with children and with peers)
    4. Academic competence (It is possible for a student to meet minimum grade point requirements and pass all courses and still have specific academic weaknesses which might cause denial of screening

applications.)

5. Teaching competence (as evidenced by successful completion of practica requirements). It is possible for a student to meet minimum grade point requirements and pass all courses and still have specific performance weaknesses which might cause denial of screening applications. Each Screening II application must be accompanied by additional documents, depending on the endorsement(s) being sought.

Department of Teaching and Learning Additional Documents

1. Professional resume
2. Parent Letter (only required for Secondary Education)
3. Copy of first aid and CPR cards to amanda.vandoorn@vanderbilt.edu

Special Education Additional Documents

1. Professional resume
2. Philosophy of Teaching Statement
3. Copy of first aid and CPR cards to amanda.vandoorn@vanderbilt.edu

Departmental faculty will consider all criteria for each individual students and will vote on a recommendation for each student. Students who are approved to student teach will receive notification of their student teaching placements no later than during the Student Teacher Orientation at the beginning of the student teaching semester.

All Vanderbilt teacher education programs are approved by the Council for the Accreditation of Educator Preparation (CAEP).

3+2 B.Mus.Arts/MBA Blair-to-Owen Program

The five-year dual-degree program between the Blair School of Music and the Owen Graduate School of Management allows a small cohort of particularly motivated students to overlap their undergraduate course work with work toward the MBA, facilitating the earning of both the undergraduate and graduate degrees in five years (ten semesters). By combining three and one-half years in Vanderbilt's Blair School of Music with one and one-half years of study in the Owen School, students may obtain both the bachelor of musical arts and the master of business administration in five years. The baccalaureate from the Blair School is awarded at the end of the fourth year, and the MBA from the Owen School after the fifth year. Students interested in pursuing this program must be enrolled in the musical arts degree.

Required course work includes the normal Blair course work for the musical arts degree, for a minimum of 63 credit hours in music. The liberal arts core will also follow the requirements for the major, but must include the following specific requirements:

- Calculus (1 semester)
- Statistics, e.g., ECON 1500: Economic Statistics
- ECON 1010: Principles of Macroeconomics
- ECON 1020: Principles of Microeconomics
- ECON 3012: Microeconomics

A curriculum plan, including recommended electives, is provided in the *Blair Student Handbook*.

Students must apply to the Owen School for admission to the five-year program during their junior year. Students should apply in Round 1 of the MBA application cycle (typically early October) of the junior year, and early application and a standardized test score (e.g., GMAT, GRE) are recommended. Acceptance into the five-year program is extremely competitive and requires advanced standing earned in undergraduate courses. Being deficient in full-time work experience, the 3+2 student must enhance their portfolio with an internship and outstanding academic performance, and also show a strong commitment to a rigorous business education. The

Summer Business Institute (Accelerator), as administered by the Owen Graduate School of Management, is strongly recommended for 3+2 applicants prior to matriculating at Owen. The successful applicant will bring an accomplished academic record (normally a GPA of 3.3 or better), satisfactory internship or work experience, an ability to articulate his or her own preparedness for the work environment, and a strong endorsement from Vanderbilt faculty.

Students who are accepted to the 3+2 program will remain registered as B.Mus.Arts students through fall of senior year, and will register as Owen students in spring of senior year. Academically, students will take a full load of business courses both in fall and spring of senior year while completing the final B.Mus.Arts degree requirements (normally, lessons and ensembles). Students must complete a minimum of 62 credit hours at Owen over four semesters. Fifteen hours (normally in fall of the senior year) of Owen School courses approved by Blair may be counted toward completion of the undergraduate degree. Students with questions may contact Liz Scowden (liz.scowden@vanderbilt.edu) in the Owen Academic and Student Affairs Office. The completion of the B.Mus.Arts degree requirements prior to fall of the student's fifth year is required for continuation in the MBA program.

Tuition and Financial Aid

The scholarship or other financial aid commitment of the Blair School will not be continued automatically beyond the seventh semester for students enrolled in the dual-degree program. Eighth-semester financial aid is the student's responsibility. Students should notify the Owen School with their application if they are interested in being a candidate for an Owen scholarship during their MBA studies. Early application is recommended. *Need-based aid will still apply.*

Students pay tuition to the undergraduate school for the fall semester of their fourth year, after which all tuition is paid to Owen (and reflects graduate school tuition rates). The Blair School of Music will waive fees for the required performance instruction during spring of the fourth year to facilitate completion of the B.Mus.Arts requirements.

Additional Programs in the College of Arts and Science

For information on the College Scholars program and departmental honors, please see the section titled Honors.

The Optional Minor

A minor is a program within a recognized area of knowledge offering students more than a casual introduction to the area but less than a major in it. Although the completion of a minor is not a degree requirement, students may elect to complete the courses specified for one or more minors. A student who completes all designated courses in a minor with a grade point average of at least 2.000 will have the minor entered on the transcript at the time of graduation.

Minors may be combined with any departmental major or interdisciplinary major, but minors may not be earned in the department or program of the major. Each minor must, however, include at least 15 credit hours that are being counted solely toward the minor. Courses may not be taken on a P/F basis if they are offered in the department of the minor or if they are being counted toward an interdisciplinary minor (see Academic Regulations).

Minors consist of a minimum of five courses of 3 or more credit hours each. Many minors require a greater number of credit hours and specific courses. When a minor is offered in a discipline that offers a major, only those courses that count toward the major may be counted toward the minor.

Students should refer to the appropriate sections of this catalog for specific requirements. Minors available at present are listed below.

Students should declare their intention to pursue specific minors by completing forms available in the Dean's Office of Undergraduate Education as well as the various departmental and program offices. Departments and programs assign advisers to students who declare minors in their respective areas. Students have the responsibility to know and satisfy all requirements for minors that they intend to complete.

Students may not add or change a minor after the final day of classes in the second semester of their senior year.

Optional minors are offered in the following fields and interdisciplinary programs:

African American and Diaspora Studies	English	Mediterranean Studies
American Studies	Environmental and Sustainability Studies	Nanoscience and Nanotechnology**
Anthropology	European Studies	Neuroscience
Arabic Language	French	Philosophy
Architecture and the Built Environment	Gender and Sexuality Studies	Physics
Art	German Studies	Political Science
Asian Studies	History	Portuguese
Astronomy	History of Architecture	Psychology
Biological Sciences	Islamic Studies	Religious Studies
Brazilian Studies	Italian Studies	Russian Studies
Chemistry	Japanese Language and Culture	Scientific Computing**
Chinese Language and Culture	Jewish Studies	Sociology
Cinema and Media Arts	Korean Language and Culture	South Asian Language and Culture
Communication of Science and Technology	Latin American Studies	Spanish
Communication Studies	Latino and Latina Studies	Theatre
Data Science*	Mathematics	Undergraduate Business Minor ^
Earth and Environmental Sciences	Medicine, Health, and Society	
Economics	Mediterranean Archaeology	

* Administered by the four undergraduate schools

**Administered by the School of Engineering in collaboration with the College of Arts and Science

^Administered by the four undergraduate schools and the Owen Graduate School of Management

Approved Minors Outside the College

Arts and Science students are permitted to pursue a second major and/or a minor that has been approved by the faculties of the other Vanderbilt undergraduate schools: the Blair School of Music, the School of Engineering, and Peabody College of Education and Human Development. See the appropriate sections of the Undergraduate Catalog under each school for details. Minors may not be earned in the department or program of the major.

Undergraduate Research

All students have ample opportunity to participate in faculty research projects or to pursue research projects independently, both on campus and at remote sites. Such research has led to the publication of coauthored or student-authored papers and other presentations to the scholarly community. Summer and academic year research by undergraduates in all fields may be subsidized by the university or the College of Arts and Science. Students should contact the director of undergraduate studies in the field of interest for more information.

Study Abroad Programs

Vanderbilt offers study programs for all undergraduate students from Arts and Science, Blair School of Music, School of Engineering, and Peabody College to provide undergraduates immediate contact with cultures different from their own and to aid in the mastery of foreign languages. Students interested in applying for study abroad should consult their advisers to determine whether all degree requirements can be completed on schedule.

Brochures on all approved programs are available in the Global Education Office in Room 115, Student Life Center. GEO also maintains a website, vanderbilt.edu/geo. The study abroad programs are described in more detail in the Special Programs for Undergraduates section of this catalog.

When choosing programs in a city for study abroad, College of Arts and Science students may only apply to the Vanderbilt-approved overseas program(s). The College only accepts credit from international schools and programs that have been approved by Vanderbilt faculty, and for which the University has a contract or agreement.

Pre-Professional Studies Medicine

Students interested in the study of medicine should plan their undergraduate programs in consultation with Dr. Michelle Grundy, health professions adviser. There is no formal premedical program of courses in the College of Arts and Science or elsewhere at Vanderbilt. Each student should plan a program to meet individual needs. The program should include whatever courses may be necessary to meet medical school admission requirements, all courses required for the major, all AXLE requirements, and elective options. Students may choose majors from any of the four undergraduate colleges, and may elect to pursue a double major or an interdisciplinary program of concentration.

A student who plans to apply for admission to the Vanderbilt University School of Medicine, as well as other medical schools, may choose either of the following options:

1. A student may qualify for admission with a B.A. degree, whether completed in three years or in four. Minimum requirements for admission generally would be met by completing at least two semesters of English, four semesters of chemistry including organic, two semesters of biology, two semesters of physics, and at least one semester of calculus/math. Since prerequisites may vary across medical schools, students are urged to consult the online resource, *Medical School Admission Requirements* (MSAR) published by the American Association of Medical Schools (at aamc.org) for school-specific information.

In light of the Medical College Admissions Test (MCAT) changes that took effect in 2015, it is recommended that students take one semester of biochemistry and one semester of introductory statistics. Additionally, through course work or self-directed study, students will need to be knowledgeable in basic concepts of psychology, sociology, and bioethics.

For more information, students are advised to visit the website of the Health Professions Advisory Office (vanderbilt.edu/hpao) and refer to the links for 1) “Premedical Preparation” and 2) “Threading a path through premedical expectations.”

2. A student may qualify as a three-year student in the senior-in-absentia program (see Senior-in-Absentia in this catalog).

Dentistry

Students interested in predental studies should plan their undergraduate program in consultation with Dr.

Michelle Grundy, health professions adviser. There is no formal predental program of courses at Vanderbilt. Predental studies should include courses necessary to meet dental school admission requirements, all courses required for the major, all AXLE requirements, and elective options. Students may choose majors from any of the four undergraduate colleges. They may also elect a double major or an interdisciplinary program of concentration. A student may apply to dental school under the senior-in-absentia program (see Senior-in-Absentia in this catalog) or apply for admission after three years of college work without a degree.

Any student contemplating application to dental school should take at least two semesters of English, four semesters of chemistry including organic, two semesters of biology, two semesters of physics, and at least one semester of calculus/math. Since prerequisites may vary across dental schools, students are urged to consult the *ADEA Official Guide to Dental Schools* published by the American Association of Dental Schools.

Nursing

Students interested in developing a program that could lead to a master of science in nursing are advised to consult the Office of Admissions in the School of Nursing.

Architecture

Undergraduate students in the College of Arts and Science expecting to pursue architecture at the graduate level should complete at least one year of analytic geometry and calculus and one year of physics. Students may select any major but would want to include courses that emphasize a broad sense of art and architectural history, including courses in studio art. Before applying to specific schools of architecture, they would develop a portfolio of creative work. Further information is available from the pre-architecture advisers: Professor Vesna Pavlović, Department of Art, and Professor Kevin Murphy, Department of the History of Art and Architecture.

Engineering

Undergraduate students in the College of Arts and Science expecting to pursue engineering at the graduate level should normally major in a natural science or mathematics and, at a minimum, should complete two years of calculus or its equivalent, one year each of chemistry and physics, and at least an additional year of a natural science or mathematics. A minimum of one year of computer science is highly desirable. Students should seek specific information concerning admission from the engineering school of their choice as early as possible, preferably by the end of the sophomore year, to assure optimum preparation for entry into that school. Standards for admission vary, but usually a 3.00 average or better is required.

Law

There is no formal program of prelaw studies at Vanderbilt. Most law schools have no specific requirements for a prelaw curriculum but place great emphasis on the development of the student’s ability to read and comprehend accurately, thoroughly, and rapidly; to speak and write clearly and correctly; to think precisely; and to analyze complex situations and weigh and appraise their several elements. The development of analytical skills and of mature study habits is vital. A broad cultural background is important—since law touches life at every point, every subject in the college curriculum may bear on the lawyer’s work. Students interested in the study of law should plan their undergraduate programs in consultation with Dean Carrie Russell, prelaw adviser, in the Dean’s Office of Undergraduate Education.

Teacher Education

Details will be found in Licensure for Teaching in the Peabody College section of this catalog.

Internships

Students may earn academic credit for the work of internships in the College of Arts and Science on a Pass/Fail basis through interdisciplinary or departmental internships. Credit hours earned will not count toward major or minor requirements or toward AXLE, but will count as part of the total credit hours required for graduation. Students obtain their own placement and faculty adviser who works with them to develop a list of readings or research agenda for the internship, which must be approved by the director of internships in the College of Arts and Science (Associate Dean Daniel Morgan). The necessary forms for earning academic credit for an internship

may be obtained from the Dean’s Office of Undergraduate Education in 350 Buttrick Hall, although students register for internships through their respective school. The deadline for submitting registration forms to the office of Dean Jones for internship courses taken during summer term and fall semester is May 1. Students expecting to intern during the spring semester should submit registration forms by January 1.

Finding an Internship

Students searching for an internship opportunity locally or elsewhere should contact the Career Center.

Interdisciplinary Internships

INDS 3880 (fall, spring), 3884 (summer). 1 credit hour (repeatable)

Any student who is at least a sophomore and in good academic standing may earn one credit hour per semester or summer for an internship under this designation. This course may be repeated twice for a maximum of 3 credit hours exclusively on a Pass/Fail basis.

Departmental Internships

Maximum of 15 credit hours (may be taken only once)

Under this option students from any discipline may earn academic credit for internships in the departments listed below if they meet the minimum GPA requirements and have 6 credit hours of prior work in the department in which they wish to intern. Students are responsible for securing a faculty adviser for the internship and developing an academic plan of work for the internship opportunity, both of which must be approved by the director of undergraduate studies in the department in which the internship is housed. (In some instances, the DUS will serve as the faculty adviser for all internships taken in that discipline.) All internships under this designation are taken concurrently with a research and/or readings course. The latter is taken on a graded basis and may count toward requirements for a major or minor. Students should consult the director of undergraduate studies in the department of interest to obtain additional information about internships in that discipline. The following departments offer up to 15 credit hours of academic credit per semester or summer for the following courses (internship courses are offered during FALL, SPRING, and SUMMER sessions):

AADS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

AMER 3880–3881. 3880: Internship Training [1–6], 3881: Internship Readings and Research [3–6].

ANTH 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

BCB 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

CLAS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

CMA 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

EES 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

FREN 3880–3881. 3880: Internship Training in France [1], 3881: Internship Readings and Research in France [3].

GSS (formerly WGS) 3880, 3882–3883. 3880: Internship Training [1–9], 3882: Internship Readings [1–3], 3883: Internship Research [1–3].

HART 3880, 3883. 3880: Internship Training [1–9], 3883: Internship Research [1–3].

HIST 3880, 3882–3883. 3880: Internship Training [3–9], 3882: Internship Readings [3], 3883: Internship Research [3].

JS 3880, 3883. 3880: Internship Training [1–3], 3883: Internship Research [3].

LAS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3-6].

MHS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1–6].

PSCI 3880, 3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [1-6].

PSY 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

RUSS 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

SOC 3880–3881. 3880: Internship Training [1–9], 3881: Internship Readings and Research [3–6].

SPAN 3880–3881. 3880: Internship Training in Spain [1], 3881: Internship Readings and Research in Spain [3].

More complete information regarding departmental internship courses may be found in the course descriptions in this catalog.

Cost of an Internship

Internships taken during the fall or spring semester will fall under the normal tuition charge unless the student falls below 12 or exceeds 18 credit hours during the semester. In both instances, the hourly tuition charge will apply with permission for an underload/overload from the appropriate academic dean. Students will be charged for internships taken during summer on the basis of the hourly tuition rate for summer school unless approved in advance to receive the internship subsidy (see the Career Center website).

Combined B.A./M.A. (4+1) Program

The College of Arts and Science offers students in many departments and programs the opportunity to earn both the bachelor's degree and the master's degree in a shorter period of time and at less cost than is normally the case.

Exceptional students in the College of Arts and Science can obtain both degrees in an expedited period, typically within, but not less than, five years.

The usual period of study for both the bachelor's and the master's degree is six years. Through the 4+1 option, the student and her or his adviser plan a five-year program of study. It is important to note that there is no provision for obtaining both degrees in a period shorter than five years. The program is intended for selected students for whom the master's degree is sufficient preparation for their career goals, is desirable as a goal in itself, or is viewed as additional preparation before pursuing a doctorate or a professional degree.

The areas of study available for the Combined B.A./M.A. (4+1) option within Arts and Science are determined by individual departments and programs, which also determine the policies and guidelines to be followed. Students will be admitted to the Combined B.A./M.A. program only by the invitation and the approval of the department or program.

Programs of Study

The 4+1 option is currently available in the following departments and programs: English; French; German; History; History of Art and Architecture; Latin American Studies; Mathematics; Medicine, Health, and Society; Philosophy; Political Science; and Psychology. Students are welcome to discuss the Combined B.A./M.A. (4+1) option with any of these departments and programs.

Admissions Overview

The Combined B.A./M.A program allows Vanderbilt University students to study for both degrees typically, but not necessarily, in the same department. Undergraduates with strong academic records may apply for admission to the program after the first semester of their junior year. Qualifying students are normally accepted into the program in the second semester of the junior year.

To apply for admission, students will first consult with the Dean's Office of Undergraduate Education (350 Buttrick Hall), and then submit to the prospective graduate department or program a "Petition to Apply to the Combined B.A./M.A. (4+1) Degree Program" (available at as.vanderbilt.edu/academics/specialdegree/4plus1.php), a statement of purpose, a formal application to the Graduate School, a preliminary program proposal, two letters of recommendation from Vanderbilt faculty, and a current transcript. Application forms are available for download or can be completed online at vanderbilt.edu/gradschool. GRE scores or other admissions requirements may be specified by the prospective department. Admission to the 4+1 option is highly selective. An accomplished academic record, a demonstrated commitment to pursue graduate study, and a strong endorsement from Vanderbilt faculty are key elements to the successful applicant. Students will be provisionally accepted as graduate students, pending completion of all undergraduate requirements. Graduate student status will apply in the fifth year.

Advising

Prospective students should discuss with one of their advisers general information on the program and whether this program is appropriate to their long-term goals. All students are encouraged to discuss their plans and goals with their undergraduate pre-major and major adviser. Especially in cases where the intended graduate program differs from the undergraduate major, the student is further encouraged to seek advice from the advisers in the graduate program.

Curriculum

Students in a 4+1 program must satisfy all requirements for both degrees. Advanced Placement (AP) credits will often be used toward satisfying general curriculum requirements, for a maximum of 18 credit hours. The principal distinction between this program and the standard graduate program is two-fold: (1) students are allowed to take master's courses while completing the bachelor's degree, and (2) students are thereby enabled to complete both degrees within five years.

In order to complete the program in five years, students will be expected to complete most, if not all, of the requirements for their undergraduate degree by the end of the first semester of the senior year. Until all baccalaureate requirements are fulfilled, the student will follow College of Arts and Science undergraduate policies and procedures. It is also suggested that students begin taking graduate courses toward the master's degree in the second semester of the senior year. Most graduate programs participating in this option have a non-thesis plan of study requiring 30 graduate credit hours in addition to the requirements for the undergraduate degree. An average load per semester as a graduate student is 9–12 credit hours.

Scholarships and Financial Aid

Students who are receiving scholarships or other forms of financial aid as a Vanderbilt undergraduate are advised that such aid applies in most cases only toward the completion of the bachelor's degree or the first four years of their studies (which may include their taking some graduate courses during their senior year). Students wishing to pursue the 4+1 option should seek support for their fifth year of study through student loans and other financial aid.

For additional information, contact A&S Deans' Office, 350 Buttrick Hall, or consult the website as.vanderbilt.edu/academics/specialdegree/4plus1.php.

Admission

The admissions process for first-year applicants to Vanderbilt is holistic in nature and based on students' academic records and personal accomplishments. All available information is considered, including secondary school academic record, evidence of academic maturity and independence, extracurricular activities, contributions to and impact on the school and community, scores on standardized tests if submitted (see #3 in Application Procedure below), and letters of recommendation.

The admissions process supports the university's mission of scholarship and discovery and is designed to select a

student body with exceptional academic talent, high standards of personal character, serious educational aims, and wide-ranging backgrounds, experiences, and perspectives. Policies that govern the selection process have been set by the vice provost for university enrollment affairs. Please refer to the nondiscrimination statement which appears earlier in this catalog.

Admission to the four undergraduate schools is managed by the Office of Undergraduate Admissions.

Prospective students are encouraged to investigate the university by visiting the campus, exploring the Office of Undergraduate Admissions website, connecting via social media, and attending college fairs and other programs hosted by Vanderbilt admissions officers across the country, around the world, and online. Admissions staff are available to answer questions, assist with understanding campus visit opportunities, provide additional information about degree programs, and link visitors with appropriate campus offices and members of the university community.

Academic Preparation

Every candidate for admission must present an official transcript of work completed in high school. While our admissions process is holistic, most successful candidates will present a curriculum that includes the equivalent of five academic subjects each year for four years. Recommended course work includes 4 units of English, 4 units of mathematics, 4 units of natural science, 2 units of foreign language, 2 units of social science/humanities, and 4 units of additional course work in these areas, or other academic courses such as engineering science, computer science, social science or natural science research, or advanced work in the humanities. Close attention will be paid to the rigor of course work presented. It is highly recommended that candidates applying to the School of Engineering have taken calculus, calculus-based physics, and chemistry.

Most successful candidates will have meaningfully engaged with the academic, intellectual, social, and leadership opportunities available in the context of their high schools and communities. In exceptionally rare cases, students may be considered for admission before completing four years of high school. In these cases, the Admissions Committee considers especially evidence of maturity and readiness for an immersive, residential college experience.

Application Procedure — First-year Applicants

1. Applicants must apply to Vanderbilt through Coalition, powered by Scoir, the Common Application, or the QuestBridge Application. Applications for admission may be accessed online at admissions.vanderbilt.edu/apply.
2. Applicants must arrange for their high school to submit an official transcript and their School Report to the Office of Undergraduate Admissions via one of the application portals.
3. For students applying for fall 2023 entry, Vanderbilt is test optional. Scores from the ACT or SAT are not required to be considered for admission. Applicants who want their test scores to be considered may self-report them on the application or may have official scores sent to Vanderbilt by the testing agency. Score reports appearing on official high school transcripts are accepted as official. Official test scores will be required for students who applied with testing and who were admitted and enroll.
4. A $50 nonrefundable application fee, or fee waiver for qualified students, is required.
5. On the application for admission, select the decision plan for which you wish to be considered: Early Decision I, Early Decision II, or Regular Decision.
    - Early Decision plans are designed for students whose first-choice college is Vanderbilt. These plans are binding: if offered admission, students agree to attend Vanderbilt and to withdraw all other applications for admission. In addition to the other application requirements, the Early Decision Agreement must be submitted. Signatures are required from the applicant, the applicant's parent/guardian, and the high school counselor.
    - The Regular Decision plan is designed for students who are considering many college options and who wish to compare offers of admission and financial aid before committing to one college. Applicants will be admitted, denied, or offered a spot on the waitlist. Waitlisted students may be offered admission later in the spring.
    - Deadlines:
        - Early Decision I — submit application by November 1
        - Early Decision II — submit application by January 1
        - Regular Decision — submit application by January 1
6. Blair School of Music applicants are required to follow the audition protocol detailed on the Blair website

(blair.vanderbilt.edu/admissions). Selected applicants will be invited to audition in person on campus.

Application Procedure — Transfer Applicants

Admission of transfer students to Vanderbilt is competitive and holistic. The priority deadline to submit the transfer application is March 15. It is Vanderbilt's practice to offer transfer admission only for the fall semester.

1. Apply online through Coalition, powered by Scoir, or through the Common Application Transfer Application.
2. For students applying for fall 2024 entry, Vanderbilt is test optional. Scores from the ACT or SAT are not required to be considered for admission. Applicants who want their test scores to be considered may self-report them on the application or may have official scores sent to Vanderbilt by the testing agency. Score reports appearing on official high school transcripts also are accepted as official. Official test scores will be required for students who applied with testing and who were admitted and enroll.
3. A $50 nonrefundable application fee, or fee waiver for qualified students, is required.
4. Provide a fully complete Transfer College Report and be in good academic and social standing at the institution last attended.
5. Provide a list of courses in which the student is currently enrolled.
6. Provide an official secondary school transcript.
7. Provide official transcripts from each college attended.
8. Submit two academic letters of recommendation.
9. Agree to attend a Vanderbilt undergraduate program for at least four semesters (60-plus hours) of full-time work (63-plus hours for Blair School of Music students). Two of these semesters (30-plus hours) must be within the senior year.
10. Blair School of Music applicants are required to follow the audition protocol detailed on the Blair website (blair.vanderbilt.edu/admissions). Selected applicants will be invited to audition in person on campus.

International Applicants

For the purpose of admission, the term "international applicants" refers to students who are not citizens of the United States or who are not eligible non-citizens. International applicants must complete all admission requirements of the university. (See "Application Procedure" above, for first-year and for transfer applicants.)

Applicants whose first language or language of instruction is not English are required to submit the results of the Test of English as a Foreign Language (TOEFL) iBT (including Home and Paper editions) TOEFL Essentials, the International English Language Testing Service (IELTS), the Pearson Test of English Academic (PTE Academic), the Duolingo English Test (DET), or the Cambridge English C1 Advanced or C2 Proficiency. This testing requirement may be waived if a student has scored above a 26 on the ACT English section or above 630 on the SAT Evidence-based Reading and Writing section. Minimum recommended scores for Vanderbilt are 100 TOEFL iBT, 10.5 on the TOEFL Essentials, 7.0 on the IELTS, 70 on the PTE Academic, 130 on the Duolingo English Test, and 185 on the Cambridge English C1 Advanced or C2 Proficiency.

Admission: Advanced Credit

Advanced Credit

Honors courses and other accelerated study in high school are excellent preparation for Vanderbilt. The well-established advanced-placement policy endeavors to recognize exceptional high school preparation, to avoid requiring first-year students to take courses clearly mastered in high school, and to encourage students to begin their college learning experience at the level most appropriate to their preparation. Advanced placement may be granted on the basis of good performance on the College Board Advanced Placement Examinations, on International Baccalaureate tests, or, in some cases, on placement tests given by Vanderbilt. Credit may also be awarded for the British G.C.E. "A" level examinations, the Advanced International Certificate of Education (AICE), the Cambridge Pre-U diploma, and similar tests, such as the French *baccalauréat,* the German *abitur,* or the Swiss *maturité* examinations. To qualify for credit for the AICE examinations or individual A-level examinations, students must have achieved an *A*, A,* or *B* thereon. More information on international exam credit is available at registrar.vanderbilt.edu/international-examinations.

College Entrance Exams

Students may not take college entrance exams after they begin their enrollment at Vanderbilt University for the purpose of course placement or academic credit. This applies to SAT, ACT, Advanced Placement, International Baccalaureate, and any similar international exams.

Advanced Placement Credit Policy

Advanced Placement Examination grades accepted for advanced placement with credit by the various departments at Vanderbilt are listed below. At the determination of individual departments, Advanced Placement Examination grades with a score of 4 or 5 may be accepted for credit. The amount of credit that may be awarded corresponds to the course work waived. Advanced Placement credit does not affect the Vanderbilt grade point average.

Students of the College of Arts and Science are limited to a total of 18 credit hours earned by any combination of advanced placement, international baccalaureate credit, advanced international credit, and credit by departmental examination, counting toward the minimum number of hours required toward the degree. For students in the College of Arts and Science, no form of advanced placement credit can be used to fulfill the Achieving Excellence in Liberal Education (AXLE) requirements.

International Baccalaureate Credit Policy

International Baccalaureate test scores accepted for advanced credit by the various departments at Vanderbilt are listed below. Students who have taken tests in other areas may submit their scores to the Office of the University Registrar for evaluation by the appropriate departments. Credits are awarded for exams taken at the higher level only. The amount of credit that may be awarded is subject to the same limitations as credit for Advanced Placement.

Advanced Placement Examination Grades Accepted by Various Departments at Vanderbilt for Advanced Placement with Credit

AP Exam	AP Score	Vanderbilt Course or Credit Equivalent	Credit Hours
Art			
Art History	4 or 5	HART 1100: History of Western Art I	3
		HART 1105: History of Western Art II	3
Studio Art: 2-D Design	4 or 5	ARTS No Equivalent: Art Studio	3
Studio Art: 3-D Design	4 or 5	ARTS No Equivalent: Art Studio	3
Studio Art: Drawing	4 or 5	ARTS No Equivalent: Art Studio	3
Computer Science			
Computer Science A	5	CS 1101: Programming & Problem Solving	3
Computer Science Principles	5	CS 1000: The Beauty and Joy of Computing	3
Economics			
Macroeconomics	4 or 5	ECON 1010: Principles of Macroeconomics	3
Microeconomics	4 or 5	ECON 1020: Principles of Microeconomics	3
English			
English Language & Composition	4 or 5	ENGL 1300W: Intermediate Composition	3
English Literature & Composition	4 or 5	ENGL 1220W: Drama Forms and Techniques	3
		ENGL 1230W: Literature and Analytical Thinking	3

Government and Politics			
Government & Politics: Comparative	4 or 5	PSCI 1101: Introduction to Comparative Politics	3
Government & Politics: United States	4 or 5	PSCI 1100: Introduction to American Government and Politics	3
History			
European History	4 or 5	HIST No Equivalent: European History	3
United States History	4 or 5	HIST No Equivalent: U.S. History	3
World History	4 or 5	HIST No Equivalent: World History	3
Human Geography (No credit)			
Languages			
Chinese Language and Culture	4	CHIN 2201: Intermediate Chinese I	5
Chinese Language and Culture	5	CHIN 2201: Intermediate Chinese II	5
French Language	4 or 5	FREN 2203: Intermediate French Language and Cultures FREN 2501W: French Composition and Grammar	3 3
German Language	4 or 5	GER 2201: Intermediate German I GER 2202: Intermediate German II	3 3
Italian Language and Culture	4 or 5	ITA 2203: Italian Journeys ITA 2501W: Grammar and Composition	3 3
Japanese Language and Culture	4	JAPN 2201: Intermediate Japanese I	3
Japanese Language and Culture	5	JAPN 2202: Intermediate Japanese II	3
Latin	4 or 5	LAT 2202: Intermediate Latin: Poetry	3
Spanish Language or Literature (beyond Fall 2021 admission)	4	SPAN 2010: Non-equivalent credit; convertible to SPAN 2204 with proctored departmental placement score of 410 or above.	3
Spanish Language (beyond Fall 2021 admission)	5	SPAN 2012: Non-equivalent credit; convertible to SPAN 3302 with proctored departmental placement score of 460 or above.	3
Spanish Literature (beyond Fall 2021 admission)	5	SPAN 2011: Non-equivalent credit; convertible to SPAN 3301W with proctored departmental placement score of 460 or above.	3
Mathematics			
Calculus AB	5	MATH 1300: Accelerated Single-Variable Calculus I	4
Calculus BC & AB Subscore	3 & 5	MATH 1300: Accelerated Single-Variable Calculus I	4
Calculus BC & AB Subscore	4 & 5	MATH 1300: Accelerated Single-Variable Calculus I	4
Calculus BC	5	MATH 1300: Accelerated Single-Variable Calculus I MATH 1301: Accelerated Single-Variable Calculus II	4 4
Music			

Music Theory	5	MUTH 1200: Survey of Music Theory	3
		No course credit awarded for music majors.	
Psychology			
Psychology	5	PSY 1200: General Psychology	3
Sciences			
Biology	4 or 5	BSCI 1100: Biology Today	3
		BSCI 1100L: Biology Today Laboratory	1
Chemistry	5	CHEM 1601: General Chemistry	3
		CHEM 1601L: General Chemistry Laboratory	1
		CHEM 1602: General Chemistry	3
		CHEM 1602L: General Chemistry Laboratory	1
Environmental Science	4 or 5	EES No Equivalent	3
Physics 1	5	PHYS 1010: Introductory Physics	3
		PHYS 1010L: Introductory Physics Lab	1
		None of the credits awarded for Physics 1 shall count toward the major or the minor in physics. No credit awarded for engineering students.	
Physics 2	5	PHYS No Equivalent	4
		None of the credits awarded for Physics 2 shall count toward the major or the minor in physics. No credit awarded for engineering students.	
Physics C: Electricity & Magnetism	5	PHYS 1602: General Physics II	3
		PHYS 1602L: General Physics II Laboratory	1
Physics C: Mechanics	5	PHYS 1601: General Physics I	3
		PHYS 1601L: General Physics I Laboratory	1
Statistics			
Statistics	4 or 5	MATH 1010: Probability and Statistical Inference	3
		No credit awarded for engineering students.	

International Baccalaureate Test Scores Accepted by Various Departments at Vanderbilt for Advanced Credit

IB Certificate Subject	IB Score	Vanderbilt Course or Credit Equivalent	Credit Hours
Biology (Higher)	6 or 7	BSCI 1100: Biology Today	3
		BSCI 1100L: Biology Today Laboratory	1
Chemistry (Higher)	6 or 7	CHEM 1601: General Chemistry	3
		CHEM 1601L: General Chemistry Laboratory	1
		CHEM 1602: General Chemistry	3
		CHEM 1602L: General Chemistry Laboratory	1
Chinese A: Language and Literature (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Chinese A: Literature (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Chinese B: Mandarin (Higher)	6 or 7	CHIN No Equivalent: Elective Credit	3
Economics (Higher)	6 or 7	ECON 1010: Principles of Macroeconomics	3
		ECON 1020: Principles of Microeconomics	3
English A: Language and Literature (Higher)	6 or 7	ENGL No Equivalent: Elective Credit	3

English A: Literature (Higher)	6 or 7	ENGL No Equivalent: Elective Credit	3
French A: Language and Literature (Higher)	6 or 7	FREN 2203: Intermediate French Language and Cultures	3
		FREN No Equivalent: Elective Credit	3
French A: Language	6 or 7	FREN 2203: Intermediate French Language and Cultures	3
		FREN No Equivalent: Elective Credit	3
French B (Higher)	6 or 7	FREN 2203: Intermediate French Language and Cultures	3
		FREN No Equivalent: Elective Credit	3
German A: Language and Literature (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
German A: Literature (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
German B (Higher)	6 or 7	GER No Equivalent: Elective above 2440	3
History (Higher)	6 or 7	HIST No Equivalent: History Elective	3
Japanese A: Language and Literature (Higher)	6 or 7	JAPN No Equivalent	3
Japanese A: Literature (Higher)	6 or 7	JAPN No Equivalent	3
Japanese B (Higher)	6 or 7	JAPN No Equivalent	3
Korean A: Language and Literature (Higher)	6 or 7	KOR No Equivalent	3
Korean A: Literature (Higher)	6 or 7	KOR No Equivalent	3
Korean B (Higher)	6 or 7	KOR No Equivalent	3
Latin (Higher)	6 or 7	LAT 2201: Intermediate Latin: Prose	3
		LAT 2202: Intermediate Latin: Poetry	3
Mathematics: Applications and Interpretation (Higher)	6 or 7	MATH 1010: Probability and Statistical Inference	3
		MATH 1100: Survey of Calculus	4
	No credit awarded for engineering students.		
Mathematics: Analysis and Approaches (Higher)	6 or 7	MATH 1010: Probability and Statistical Inference	3
		MATH 1300: Accelerated Single-Variable Calculus I	4
	No credit for MATH 1010 for engineering students.		
Music (Higher)	6 or 7	MUSL No Equivalent (may count toward a music major)	3
Physics (Higher)	7	PHYS 1601: General Physics I	3
		PHYS 1601L: General Physics Laboratory I	1
		PHYS 1602: General Physics II	3
		PHYS 1602L: General Physics Laboratory II	1
Psychology (Higher)	6 or 7	PSY 1200: General Psychology	3
Russian A: Language and Literature (Higher)	6 or 7	RUSS No Equivalent	3
Russian A: Literature	6 or 7	RUSS No Equivalent	3
Russian B (Higher)	6 or 7	RUSS No Equivalent	3
Spanish A: Language and Literature (Higher)	6 or 7	SPAN 2203: Intermediate Spanish	5
Spanish A: Literature (Higher)	6 or 7	SPAN 3302: Spanish for Oral Communication	3
Spanish B (Higher)	6 or 7	SPAN No Equivalent	3
Visual Arts (Higher)	6 or 7	ARTS No Equivalent: Visual Arts	3
		ARTS No Equivalent: Visual Arts	3

Pre-College Summer School Program

Upon completion of the sophomore or junior year in high school, students may enroll, at the freshman level, for regular work in the Vanderbilt summer session.

The following conditions must be met: (a) students must be in the upper 25 percent of their high school class and be recommended by their principal or counselor; (b) courses taken in the Vanderbilt summer session must be chosen by the student in consultation with his or her high school counselor and the director of the Division of Unclassified Studies so as to supplement and not overlap the total high school program. A student may take two courses in any one summer, or three courses by special authorization of the director of the Division of Unclassified Studies.

Course work done at Vanderbilt by a pre-college student may count toward the high school diploma and as part of the entrance requirements for regular admission to Vanderbilt. All course work done at Vanderbilt by pre-college students will be credited toward the degree for those who may subsequently matriculate at Vanderbilt, unless the course work is required for high school graduation. Admission to the pre-college summer school program does not admit a student as a regular entering freshman, nor does it commit the university to a student's admission.

Credit for Previous College Work

Entering first-year students who have taken college work in high school through dual enrollment or concurrent enrollment programs, or during summers prior to their offer of admission to Vanderbilt, must indicate such work on the undergraduate admission application. An official transcript showing any prior college work must be provided. Once all required documentation has been received, the coursework will be reviewed to determine whether it is eligible for credit at Vanderbilt.

Students should submit all required documentation for review before the first day of classes of their freshman year.

Credit will be awarded only if:

1. A course is regularly offered by an accredited two-year or four-year college or university. For domestic schools, the school must be regionally accredited; for international schools, the school must have country-specific accreditation.
2. The teacher was a regular faculty member of that college or university.
3. A majority of the students in the course were degree-seeking college students.

Additional requirements and guidelines regarding pre-freshman credit are available at registrar.vanderbilt.edu/transfer-credit.php.

The College of Arts and Science and Peabody College usually do not award credit for work at other colleges in the summer immediately preceding the student's first semester at Vanderbilt. Summer work elsewhere will be accepted for credit only if an unusual educational opportunity can be demonstrated and if the courses sought are as rigorous as courses offered at Vanderbilt. Approval for work to be taken elsewhere must be obtained in advance from the appropriate dean.

College of Arts and Science. In no case may credits completed elsewhere after the student has been offered admission by the College of Arts and Science satisfy AXLE requirements.

Admission: Division of Unclassified Studies

The Division of Unclassified Studies provides an opportunity to take undergraduate courses at Vanderbilt as follows:

a. adults not interested in working toward a degree,
b. visiting students working toward a degree at another institution (students in this category may not remain enrolled in the division for more than two regular semesters and one summer session), and
c. rising junior and senior students in high school who have received special permission to enroll in courses for college credit.

Such students register in the Division of Unclassified Studies. Records are kept of their work, and a transcript may be made available to them as it would be if they were regularly enrolled at Vanderbilt. Work taken in the division may be transferred to a degree-granting unit of the university provided it is work that will count as part of the program of that unit. Work so transferred may not amount to more than one-fourth of the requirements for the Vanderbilt degree. Requests for transfer to a Vanderbilt degree-granting school must be made to the Office of Undergraduate Admissions. Division of Unclassified Studies students are not eligible for intra-university transfer.

Students who want to enroll in the Division of Unclassified Studies must apply and be admitted to the division at least one week before the first day of classes for the term or session they wish to attend. Requests for exceptions to the admission criteria must be addressed in writing to the vice provost for university enrollment affairs and dean of admissions and financial aid, whose decision is final.

All university regulations, including the Honor System, apply to students registered in the Division of Unclassified Studies.

Degree candidates have priority in enrollment at Vanderbilt, and students registering in the Division of Unclassified Studies should be prepared for this contingency. DUS students must meet all course prerequisites. Permission of the Office of the Dean is required for enrollment in some courses. Tuition is charged at the standard rate.

Division of Unclassified Studies students are not charged health insurance fees, and do not have access to student health services.

Admission: International Students

Vanderbilt has a large international community representing more than 95 countries. The university welcomes the diversity international students bring to the campus and encourages academic and social interactions at all levels.

Admission. See International Applicants section.

English Language Instruction. Students wishing to focus on improving their English language use for the context of the U.S. academic setting may take classes and participate in programming at the Vanderbilt English Language Center to support their academic success. The ELC's courses include *write*ELC, Academic Speaking, and Pronunciation. Throughout the academic year, academic workshops and one-to-one consultations for speaking and writing are also available through the ELC. Entering students may be required to take language support courses concurrently with their academic courses at the ELC. The ELC is located at 1208 18th Avenue South. For information about the ELC's programming, see the "English Language Center" section or visit vanderbilt.edu/elc.

Financial Resources. To meet requirements for entry into the United States for study, applicants must demonstrate that they have sufficient financial resources to meet the expected costs of their educational program. Applicants must provide documentary evidence of their financial resources before visa documents can be issued.

United States laws and regulations restrict the opportunity for international students in a non-immigrant visa status to be employed. Undergraduate international students are allowed to work on campus for nineteen hours per week while school is in session. Students may be allowed to work off campus only under special circumstances and after approval from ISSS. Many spouses and dependents of international students are not allowed to be employed while in the United States.

Limited need-based financial aid is available to students who are neither citizens nor permanent residents of the United States, and are considered to be international students in Vanderbilt's admissions process. Our admissions process is need-aware for international students; international students who demonstrate that they can afford the cost of attending Vanderbilt will be given preferential treatment. To apply for need-based financial aid, international students are required to submit the College Scholarship Service (CSS) Financial Aid Profile. Based upon an evaluation of academic qualities, financial need, and availability of resources, an international student may be considered for need-based financial assistance. International students who apply for need-based financial aid will be admitted only if they are competitive in our holistic review and if Vanderbilt is able to provide adequate financial assistance.

International Student Health Insurance. International students are required to have health insurance throughout their academic program and are automatically enrolled in the Vanderbilt-approved health insurance plan for international students. For information concerning the limits, exclusions, and benefits of this insurance coverage, please contact the Student Health Center.

Admission: Intra-University Transfer

Undergraduate students in the College of Arts and Science, Blair School of Music, School of Engineering, and Peabody College may request a transfer between the schools. Students are eligible for intra-university transfer after having been enrolled on a full-time basis at Vanderbilt for two semesters. Students who transferred to Vanderbilt from another institution are eligible for intra-university transfer after having completed at least one full semester at Vanderbilt and having achieved sophomore standing. To be eligible for transfer, students must meet the requirements of the school they wish to enter.

Applications are available on the Office of the University Registrar website, registrar.vanderbilt.edu/intra-university-transfers/, and should be submitted to the Office of the University Registrar by the required deadlines listed on this webpage.

Students seeking transfer between schools within the university must meet the following requirements: (a) a student who has been in residence for two regular semesters must have a minimum of 24 hours and a cumulative grade point average of 1.800; (b) a student who has been in residence for three regular semesters must have a minimum of 39 hours and a cumulative grade point average of 1.850; (c) a student who has been in residence for four regular semesters must have a minimum of 54 hours and a cumulative grade point average of 1.900; (d) a student who has been in residence for five regular semesters must have a minimum of 69 hours and a cumulative grade point average of 1.950.

Individual schools and/or majors may impose additional restrictions beyond the minimum requirements listed above. Students applying to the Blair School of Music must audition as part of the process. Transfer applicants to the School of Engineering should present at least two semesters of college calculus and two semesters of laboratory- based science as required in the intended major. Advanced Placement or International Baccalaureate credit, if accepted by Vanderbilt, can be used to meet these requirements.

Admission: Maymester

In the interval of several weeks between final examinations in the spring semester and the beginning of summer session, Vanderbilt offers educational travel opportunities and a variety of courses that would be difficult to offer during a regular semester.

Students are permitted to take no more than one course during the Maymester. Housing and food services are available during the session. Visiting students are eligible for Maymester courses.

Information about May courses on campus or abroad can be found at vanderbilt.edu/summer.

Admission: Prior Degrees

It is the policy of Vanderbilt University to verify prior educational credentials for all admitted students who intend to matriculate. All matriculated students must provide official copies of transcripts and any other required supporting documentation to Vanderbilt University as part of the prior degree verification process. The Office of the University Registrar will review transcripts and other supporting documentation for authenticity and to confirm degrees earned prior to matriculation at Vanderbilt. Offers of admission are contingent on a student's providing the required documentation. Undergraduate students who are not able to provide evidence of prior degrees will not be permitted to register for subsequent terms and may be subject to dismissal from the university.

Admission: Summer Session

The ten-week summer session begins in early June and ends early in August. In addition, some units of the university offer an accelerated four-week Maymester. Vanderbilt offers the summer program for regularly enrolled students at the university, for part-time students, and for students enrolled during the regular year in other colleges and universities (visiting students).

Summer courses are normally offered by the College of Arts and Science, Blair School of Music, the School of Engineering, the Graduate School, the School of Nursing, and Peabody College.

Some courses extend over the entire summer session and complete the work of a full semester. Others are offered in modular units of eight, six, five, or four weeks, for full semester credit. Still other summer courses complete a full semester's work in the first five-week or second five-week half of summer session, with classes meeting twice as many hours per week. In full-year courses offered in summer, the work of the first semester is covered in the first half-session, the work of the second semester in the second half.

Classrooms, residence halls, libraries, and dining halls are air conditioned. The David Williams II Student Recreation and Wellness Center and other athletic facilities are open in the summer. Information about the summer session is available on request from the Division of Unclassified Studies or from each school's Office of Academic Services. Students may also visit vanderbilt.edu/summer for additional information.

Admission: Transfer Credit

Work presented for transfer must be from an accredited college and is subject to evaluation in light of the degree requirements of this university. For domestic schools, the school must be regionally accredited; for international schools, the school must have country-specific accreditation.

Work transferred to Vanderbilt from another institution will not carry with it a grade point average. No course in which a grade below *C*– was received will be credited toward a degree offered by the university.

College of Arts and Science. Transfer students must complete at least 60 hours of work in the College of Arts and Science. Credit earned as a degree-seeking student at another university may be used to fulfill AXLE requirements.

Blair School of Music. In addition to an application for admission, transfer students applying to Blair must also submit a Blair School of Music Application, which includes a required prescreening video, by the March 15

deadline. Selected applicants will be invited to audition in person. See the Blair website for information and instructions about the Blair admissions process. Transfer students will be assigned a level of program study based on the entrance audition. Credit for music courses may be granted following an examination at Blair. Credit for non- music courses is subject to evaluation by the university. Transfer students must complete at least 63 hours at Blair.

School of Engineering. Transfer students must complete at least 60 hours of work at Vanderbilt.

Peabody College. Transfer students must complete at least 60 hours of work at Peabody. Two of the four semesters in residence must be the last two semesters of the student's degree program.

African American and Diaspora Studies

CHAIR Tiffany Patterson

DIRECTOR OF UNDERGRADUATE STUDIES Claudine Taaffe

DIRECTOR OF GRADUATE STUDIES Gilman W. Whiting

PROFESSORS Victor Anderson, Houston Baker, Michael Eric Dyson, David Ikard, Hector F. Myers, Alice Randall, Tracy D. Sharpley-Whiting, Gilman W. Whiting

ASSOCIATE PROFESSORS Tiffany R. Patterson

SENIOR LECTURER Claudine Taaffe

WRITER IN RESIDENCE Alice Randall

COURSES OFFERED: AADS

The concentration in African American and Diaspora Studies requires 36 credit hours of course work. Approved courses taken at Fisk University may be counted as electives in the program. The course of study in the African American and Diaspora Studies program is divided into three areas: Area of Study I, Gender and Sexuality; Area of Study II, Literature, Theory, and Visual Culture; and Area of Study III, Social Sciences. Courses that satisfy each area are listed under "Areas of Study and Electives" below.

Program of Concentration in African American and Diaspora Studies

Requirements for the major include at least 36 hours of credit as follows:

1. 3 credit hours from 1010, Introduction to African American and Diaspora Studies.
2. 6 credit hours from Area of Study I, Gender and Sexuality.
3. 6 credit hours from Area of Study II, Literature, Theory, and Visual Culture.
4. 6 credit hours from Area of Study III, Social Sciences.
5. 12 credit hours of electives chosen from Areas of Study I, II, and III, not used to satisfy requirements 2 through 4 above.
6. 3 credit hours in either 4978 (fall) or 4979 (spring), Senior Thesis in African American and Diaspora Studies.

At least 6 credit hours of the concentration must focus on the Americas (outside of the United States) and/or Africa. No more than 9 credit hours of course work may be taken at the 1000 level (excluding 1010).

Honors Program

The only route to honors in the major is writing a 3-credit hour Senior Honors Thesis in AADS 4998 (fall) or 4999 (spring) and passing an oral examination. Admission to the Honors Program requires a student have a grade point average of at least 3.5 in all AADS courses and a cumulative GPA of 3.3. A committee of three faculty members (two of whom must be involved in undergraduate teaching in the African American and Diaspora

Studies program) will evaluate the thesis. Students pursuing the Senior Honors Thesis may apply to the program for nominal funding to assist with research projects. The chair of the student's thesis committee and two readers must attend the oral examination. The oral defense will typically take place in the second semester of the student's senior year.

Minor in African American and Diaspora Studies

Requirements for completion of the minor include at least 21 credit hours as follows:

1. 3 credit hours in 1010, Introduction to African American and Diaspora Studies.
2. 3 credit hours from Area of Study I, Gender and Sexuality.
3. 3 credit hours from Area of Study II, Literature, Theory, and Visual Culture.
4. 3 credit hours from Area of Study III, Social Sciences.
5. 9 credit hours of electives chosen from Areas of Study I, II, and III, not used to satisfy requirements 2 through 4 above.

At least 6 credit hours of the minor must focus on the Americas (outside of the United States) and/or Africa, and no more than 6 credit hours of the minor can be taken at the 1000 level (excluding 1010).

Areas of Study

Courses with an asterisk in the lists below fulfill the Africa and Americas outside of the United States portion of the major and minor. Approved courses offered at Fisk may count toward elective requirements.

Area of Study I, Gender and Sexuality

AADS: 1204* Diaspora Feminisms; 1404 Comparative Black Male Writers; 2104* Popular Culture and Black Sexual Politics; 2204* Black Women and the Politics of Blackness and Beauty; 2214 History & Myth: Black Women in the United States; 2294* Black Paris–Paris Noir: The African Diaspora and the City of Light; 2514* Insider/Outsider: Lesbian, Gay, Bisexual, Queer, and Trans Black Histories; 2654* Memoirs and Biographies; 3104W* Soul Food as Text in Text: An Examination of African American Foodways; 3204W* African American Children's Literature; 3214* Black Masculinity: Social Imagery and Public Policy; 4104 Environmental History, Sustainability, and African American Foodways; 4264* Black Diaspora Women Writers.

Area of Study II, Literature, Theory, and Visual Culture

AADS: 1016* Race Matters; 1506* Reel to Real: Film Aesthetics and Representation; 1706* Capoeira; 1716* The African City; 1906* Curating Black Lives: Imagination, Art, and Global Social Change; 2106* African Diaspora: A Problem for Thought; 2166 Blacks in Country Music; 2306* Race, Mixed Race, and "Passing"; 2356* African Spirits in Exile: Diaspora Religions in the Americas; 3004 The Morrisonian Era: Toni Morrison and American Social Reality; 3006* James Baldwin: Five Ways of Looking at His Life, Writing and Place; 3106* GOAT: Life, Times, and Politics of Muhammad Ali; 3206 Mystery, Murder, and Mayhem in Black Detective Fiction; 3306 Black Detroit; 3556 The Political Economy of Racism; 4126* The Black Classics; 4256* Haiti: Freedom, Democracy; 4506* Slavery and Public Memory.

Area of Study III, Social Sciences

AADS: 1108* Making of the African Diaspora; 1408* Blacks in Latin America and the Caribbean; 1808* On Whiteness: Whiteness, Race, and Identity; 2168* Black Migrations in the African Diaspora; 2178* Global Africa; 3178* Colonialism and After; 3208W* Blacks in the Military; 3258 Black Issues in Education; 3278* Black Europe; 3458* Atlantic African Slave Trade; 4198* Global Anti-Blackness and Black Power; 4228W Black Girlhood: History, Performance, and Counter-Narratives; 4270 Research Methods; 4588* The Black Studies Movement.

Other Electives

Any course from the above three areas may serve as an elective if it is not already being used to satisfy an Area of Study requirement. Please consult the director of undergraduate studies for periodic updates about electives

including courses that can be taken at Fisk as electives for AADS.

AFRICAN AMERICAN AND DIASPORA STUDIES: 1111* First Year Writing Seminar.

ANTHROPOLOGY: 2105* Race in the Americas; 2106* Culture and Power in Latin America. 2375 Making Racism Visible: Media and Civil Rights from MLK to Black Lives Matter.

ASIAN AMERICAN STUDIES: 3155* Blackness and the Asian Century. ECONOMICS: 2150 Economic History of the United States.

ENGLISH: 3654/3654W African American Literature; 3658 Latino-American Literature; 3674* Caribbean Literature; 3742* Feminist Theory.

FRENCH: 3232* Introduction to Francophone Literature; 4023* The African Novel.

GENDER AND SEXUALITY STUDIES: 1150/1150W Sex and Gender in Everyday Life; 2240 Introduction to Women's Health; 3250/3250W Contemporary Women's Movements.

HISTORY: 1269* Introduction to African Studies; 1270* Sub-Saharan Africa 1400–1800; 1270W History of Sub-Saharan Africa; 1280* Africa since 1800; 1281W* Making of African Cities; 1383* Slave Resistance in the Americas; 1395 The Underground Railroad; 1410 U.S. 1877–1945: Reconstruction through World War II; 1440 African American History since 1877; 2137* The Mandelas: Biography, Struggle, and Legacies; 2450* Reform, Crisis, and Independence in Latin America, 1700–1820; 2139* Technology, Nature, Power in Africa; 2490* Brazilian Civilization; 2570* Caribbean History 1492–1983; 2620 The Old South; 2630 The New South; 2684* The History of Black Power; 2686 Race, Rights, American Dream; 2689 "Women of Color": History, Theorizing and Organizing in the United States; 2690 The Civil Rights Movement; 2691 Barack Obama: Man and President; 2692W* Biographies of Struggle; 2749 American Intellectual History to 1865; 2752 African American Intellectual History Since 1776; 3040 Health and African American Experience; 3200* Poverty, Economy, Society in Sub-Saharan Africa.

HISTORY OF ART AND ARCHITECTURE: 1750W African American Arts; 4960* Advanced Seminar in History of Art. JEWISH STUDIES: 2240W Black-Jewish Relations in Post-War American Literature and Culture.

MEDICINE, HEALTH AND SOCIETY: 1940 Racial and Ethnic Health Disparities; 3140 Afrofuturism and Cultural Criticisms of Medicine.

MUSIC: 1100* World Music; 1105* African Music; 1600 American Popular Music; 1620 Survey of Jazz; 1630 The Blues; 2150* Music, Identity, and Diversity.

PHILOSOPHY: 2665 Race and Racism.

POLITICAL SCIENCE: 2237* African Politics.

RELIGIOUS STUDIES: 1100 Introduction to African American Religious Traditions; 3119 Martin Luther King, Jr., and the Social Roles of Religion; 3142 Slave Thought and Culture in the American South.

SOCIOLOGY: 3207 Popular Culture Dynamics; 3701 Racial Domination, Racial Progress; 3304 Race, Gender, and Health; 3702 Racial and Ethnic Minorities in the United States; 3704 Race, Gender, and Sport; 3624 Prison Life; 3711* Women, Gender, and Globalization; 3722* Gender in Society; 3723* Gender, Sexuality, and the Body.

SPANISH: 3835* Latino Immigration Experience*; 4750* Afro-Hispanic Literature.

American Studies

DIRECTOR Paul Stob (Communications Studies)

ASSOCIATE DIRECTOR Gabriel A. Torres Colón (Anthropology)

PROFESSORS C. André Christie-Mizell (Sociology), Colin Dayan (English), Ted Fischer (Anthropology), Sarah Igo (History), Dana Nelson (English), Emilie Townes (Divinity)

ASSOCIATE PROFESSORS Teresa A. Goddu (English), Leah Lowe (Theatre)

ASSISTANT PROFESSORS Aimi Hamraie (Medicine, Health, and Society), Gabriel A. Torres Colón (Anthropology)

SENIOR LECTURERS Alexander I. Jacobs, Susan Kevra (French), Mario Rewers, Danyelle Valentine

Affiliated Faculty

PROFESSORS Dan Cornfield (Sociology), Marshall C. Eakin (History), Derek Griffith (Medicine, Health, and Society), Joni Hersch (Law), Larry Isaac (Sociology), Jonathan Metzl (Medicine, Health, and Society), Kelly Oliver (Philosophy), Lucius Outlaw Jr. (Philosophy), Laurel C. Schneider (Religious Studies), Dan Sharfstein (Law), Hortense Spillers (English), Dan Usner (History)

ASSOCIATE PROFESSORS Vanessa Beasley (Communication Studies), Claire Sisco King (Communication Studies), Richard Lloyd (Sociology), Ken MacLeish (Medicine, Health, and Society, Paul Miller (French and Italian), Ann Neely (Teaching and Learning)

ASSISTANT PROFESSORS Ashley Carse (Human and Organizational Development), Sara Safransky (Human and Organizational Development)

SENIOR LECTURER Chalene Helmuth (Latin American Studies)

OTHER AFFILIATED FACULTY Joe Bandy (Assistant Director of the Center for Teaching)

COURSES OFFERED: AMER

The Program in American Studies is an interdisciplinary program fostering the in-depth study of American cultures from a variety of perspectives. Students choose their path through the major or minor based on their own intellectual commitments. Through course offerings, colloquia, and research opportunities, students examine questions of power and conflict, experience and identity, and tradition and social change—both within and beyond the territorial borders of the United States and the Americas. The program allows study at the local, subnational, national, and global levels, from in-depth investigation of Nashville communities to research on transnational nongovernmental organizations. Matters of class, race, region, gender, ethnicity, sexuality, religion, law, migration, environment, technology, politics, and the arts are central to the curriculum. Students participate in a robust set of extracurricular events, including Road Trips, City Walks, and discussion of current events through the Beyond the Headlines series. The program also encourages and provides opportunities for on- and off-campus research, internships, study abroad, and individual and group projects under the guidance of participating faculty in the humanities, arts, and social sciences.

Program of Concentration in American Studies

The interdisciplinary major in American studies consists of 30 credit hours of course work, distributed as follows:

1. Core Requirements: 9 credit hours
2. International Requirement: 3 credit hours
3. Interdisciplinary Requirement: 6 credit hours
4. Electives: 12 credit hours

Note: No course may be counted twice in calculating the 30 credit hours. No more than 6 credit hours at the 1000 level can count toward the major. Students seeking a second major may count a maximum of 6 credit hours of course work toward meeting requirements in both majors.

1. *Core Requirements* (9 credit hours)

Core Courses:

AMER 1002, Introduction to American Studies (3 credit hours)

AMER 4000, Research Methods Workshop (3 credit hours)

AMER 4960, Senior Project (3 credit hours)

2. *International Requirement* (3 credit hours)

One of the following:

a. AMER 3200, Global Perspectives on the U.S. (3 credit hours)
b. With approval of the director of undergraduate studies, a 3 credit-hour course that explicitly addresses a global perspective on the United States

Examples of approved courses include:

ANTHROPOLOGY: 3161, Colonial Encounters in the Americas.

ECONOMICS: 4520, Seminar on Globalization.

HISTORY: 2535, Latin America and the United States; 2700, The U.S. and the World; 2710, The U.S. as a World Power.

INTERDISCIPLINARY STUDIES: 3831, Global Citizenship and Service; 3832, Global Community Service; 3833, Seminar in Global Citizenship and Service.

JEWISH STUDIES: 2450, The Jewish Diaspora.

POLITICAL SCIENCE: 2225, International Political Economy; 2236, The Politics of Global Inequality.

3. *Interdisciplinary Requirement* (6 credit hours)

6 credit hours from at least two different interdisciplinary programs: African American and Diaspora Studies; American Studies; Asian Studies; Cinema and Media Arts; Earth and Environmental Sciences; Gender and Sexuality Studies; Jewish Studies; Latin American Studies; Latino and Latina Studies; Medicine, Health, and Society.

Note: See below for a list of approved courses in interdisciplinary programs.

4. *Electives* (12 credit hours)

Four courses pre-approved to form a study of concentration. See below for a list of approved courses.

Minor in American Studies

The interdisciplinary minor in American studies consists of 15 credit hours of course work, distributed as follows:

1. Core Requirements: 6 credit hours
2. International Requirement: 3 credit hours
3. Electives: 6 credit hours

1. *Core Requirements* (6 credit hours)

Core Courses:

AMER 1002, Introduction to American Studies (3 credit hours)

AMER 4000, Research Methods Workshop (3 credit hours)

2. *International Requirement* (3 credit hours)

One of the following:

a. AMER 3200, Global Perspectives on the U.S. (3 credit hours)
b. A pre-approved course that explicitly addresses a global perspective on the U.S.; see part 2(b) of the major for sample courses.

3. *Electives* (6 credit hours)

Two courses pre-approved to form a plan of concentration. See below for a list of approved courses.

Honors Program

The Honors Program in American Studies offers superior students a more intensive concentration within their major field. The program requires:

1. Completion of the requirements of the major.
2. A 3.3 cumulative grade point average.
3. A 3.5 cumulative grade point average in American Studies.
4. 6 credit hours in the fall and spring semesters of the senior year in AMER 4998/4999 devoted to a major research project leading to an honors thesis. 4999 counts as the Senior Project (4960), and 4998 counts as elective credit for the requirements of the major.
5. An Honors thesis to be completed by the spring of the senior year.
6. Successful completion of an oral examination on the topic of the thesis.

Exceptional achievement on the thesis will earn highest honors. Applications are accepted in March of the junior year. Additional information is available from the director of the American Studies program.

General Advice for Majors and Minors

We encourage students to enter the major through a number of avenues: a First-Year Writing Seminar; our introductory course to the major, AMER 1002/1002W; or an introductory course in a particular discipline or program. Up to 6 credit hours of introductory courses can count toward the major.

Once having declared a major or minor, students should work closely with their adviser to develop a coherent plan of study. We encourage students to concentrate on a theme or topic of special interest, either by choosing courses with a topical coherence each semester or by choosing a single thematic focus or scholarly problem. We also highly encourage our majors to seek opportunities for study abroad or internship possibilities. Students may take the American Studies Workshop at any time during their coursework in order to facilitate their progress towards the capstone Senior Project, taken during the spring of senior year. Distributional requirements and electives should be selected in close conjunction with the adviser.

We also encourage our students to participate in American Studies programming that occurs outside the classroom, including our Road Trips, City Walks, and Beyond the Headlines series.

Please consult the American Studies program website for detailed descriptions of courses. For all 1111, special topic, and independent study courses, the course must be on an American topic, as approved by the director of the American Studies program. *Note:* 1111 in all departments receives credit when an American topic is offered.

Approved List of Courses

INTERDISCIPLINARY PROGRAMS

AFRICAN AMERICAN AND DIASPORA STUDIES: 1010, Introduction to African American and Diaspora Studies; 1016, Race Matters; 3104W, Soul Food as Text in Text: An Examination of African American Foodways; 3206, Mystery, Murder, and Mayhem in Black Detective Fiction; 3214, Black Masculinity: Social Imagery and Public Policy; 3258, Black Issues in Education.

AMERICAN STUDIES: 1111, First-Year Writing Seminar; 2100, Sport, Culture, and Society; 2500, American Cultures; 2700, Religion, Politics, and American Culture; 3851, Independent Readings and Research; 3852, Independent Readings and Research; 3881, Internship Readings and Research; 3890, Topics in American Studies; 4100, Undergraduate Seminar in American Studies; 4998, Senior Honors Research; 4999, Senior Honors Thesis.

CINEMA AND MEDIA ARTS: 1600, Introduction to Film and Media Studies.

GENDER AND SEXUALITY STUDIES: 2243, Sociologies of Men and Masculinity; 2248, Humor and Cultural Critique in Fannie Flagg’s Novels; 2249, Women and Humor in the Age of Television; 2259/2259W, Reading and Writing Lives; 2268, Gender, Race, Justice, and the Environment; 3246W, Women’s Rights, Women’s Wrongs; 3250/3250W, Contemporary Women’s Movements; 3271, Feminist Legal Theory; 3891, Special Topics: Topics in Gender, Culture, and Representation; 3893, Selected Topics (when an American topic is offered).

JEWISH STUDIES: 2280/2280W, Jewish Humor; 2400, American Jewish Life; 2420W, American Jewish Music; 2560, Social Movements in Modern Jewish Life; 3830, Contemporary Jewish Issues.

LATIN AMERICAN STUDIES: 2601, Latin America, Latinos, and the United States.

MEDICINE, HEALTH, AND SOCIETY: 1930, Fundamental Issues in Medicine, Health, and Society; 3020, U.S. Public Health Ethics and Policy; 3150, Death and Dying in America; 3890, Special Topics.

ELECTIVES

ANTHROPOLOGY: 2105, Race in the Americas.

ART: 1099, Maymester Contemporary Art Blitz (when U.S. city/art).

CLASSICAL STUDIES: 3000, Classical Tradition in America.

COMMUNICATION STUDIES: 2800, Rhetoric and Civic Life; 2950, Rhetoric of Mass Media; 3000, Rhetoric of the American Experience, 1640– 1865; 3001, Rhetoric of the American Experience, 1865---1945; 3002, Rhetoric of the American Experience, 1945–Present; 3100, Rhetoric of Social Movements; 3110, Women, Rhetoric, and Social Change; 3700, Politics and Mass Media; 3720, Communicating Gender; 3890, Selected Topics in Communication Studies; 4940–4941, Seminars in Selected Topics.

ECONOMICS: 2100, Labor Economics; 2150, Economic History of the United States; 2890, Special Topics; 3100, Wages, Employment, and Labor Markets; 3150, Topics in the Economic History of the U.S.

ENGLISH: 2316, 2316W, Representative American Writers; 2320, Southern Literature; 3620, Nineteenth-Century American Literature; 3622, Nineteenth-Century American Women Writers; 3624W, Literature of the American Civil War; 3640, Modern British and American Poetry: Yeats to Auden; 3642, Film and Modernism; 3644, Jewish American Literature; 3644–3645, Twentieth-Century American Novel; 3646, Poetry since World War II; 3650, 3650W, Ethnic American Literature; 3654, 3654W, African American Literature; 3658, Latino-American Literature; 3662, 3662W, Asian American Literature; 3674, Caribbean Literature; 3680–3681, Twentieth-Century Drama; 3692, Desire in America: Literature, Cinema, and History; 3694, America on Film: Art and Ideology; 3695, America on Film: Performance and Culture; 3710–3711, Literature and Intellectual History (when an American topic is offered); 3746, Workshop in English and History; 3890, 3890W, Movements in Literature (when an American topic is offered); 3892, 3892W, Problems in Literature (when an American topic is offered); 3894, 3894W, Major Figures in Literature; 3896, Special Topics in Investigative Writing in America; 3898, 3898W, Special Topics in English and American Literature (when an American topic is offered); 3899, Special Topics in Film.

HISTORY: 1390, America to 1776: Discovery to Revolution; 1400, U.S. 1776–1877: Revolution to Civil War and Reconstruction; 1410, U.S. 1877– 1945: Reconstruction through World War II; 1420, U.S. Post-1945: Cold War to the Present; 1427W, America in the Seventies; 1430W, American Indians and the Environment; 1440, African American History since 1877; 1660, American Enterprise; 1690, Sea Power in History; 1730, The U.S. and

the Cold War; 1740, The U.S. and the Vietnam War; 2535, Latin America and the United States; 2580, American Indian History before 1850; 2590, American Indian History since 1850; 2610, The Founding Generation; 2620, The Old South; 2630, The New South; 2640, Appalachia; 2662, American Slavery; 2690, The Civil Rights Movement; 2691, Barack Obama: Man and President; 2700, The U.S. and the World; 2710, The U.S. as a World Power; 2721, Globalizing American History, 1877–1929; 2730, American Masculinities; 2749, American Intellectual History to 1865; 2750, American Intellectual History since 1865; 2800, Modern Medicine; 2810, Women, Health, and Sexuality; 2840, Sexuality and Gender in the Western Tradition since 1700; 3010, Pornography and Prostitution in History; 3040, Health and the African American Experience; 3140, History of New Orleans; 3170, The Federalist Papers; 3746, Workshop in English and History; 3890, Selected Topics in History (when an American topic is offered); 4960, Majors Seminar (when an American topic is offered).

HISTORY OF ART AND ARCHITECTURE: 2660, American Art to 1865; 2720, Modern Architecture; 2760, Early American Modernism, 1865– 1945; 2765, Art since 1945; 3735, History of Photography; 4960, Advanced Seminar (when an American topic is offered).

MUSIC LITERATURE AND HISTORY: 1600, American Popular Music; 1610, Musical Theatre in America: A Cultural History; 1620, Survey of Jazz; 1630, The Blues; 1640, Country Music; 1650, History of Rock Music; 2150, Music, Identity, and Diversity; 2320, Exploring the Film Soundtrack; 2600, American Music; 2610, Music of the South.

OTHER MUSIC COURSES: 1300, Music and the Fall of Segregation.

PHILOSOPHY: 2104, Nineteenth-Century Philosophy; 2110, Contemporary Philosophy; 3008, American Philosophy; 3603, Philosophy of Education; 3623, Modern Philosophies of Law.

POLITICAL SCIENCE: 1100, Introduction to American Government and Politics; 1150, U.S. Elections; 2222, American Foreign Policy; 2240, Political Parties; 2243, Political Campaigns and the Electoral Process; 2245, The American Presidency; 2255, Public Policy Problems; 2262, The Judicial Process; 2263, Religion and Politics; 2265, Constitutional Law: Powers and Structures of Government; 2266, Constitutional Law: Civil Liberties and Rights; 3241, American Public Opinion and Voting Behavior; 3244, The Legislative Process; 3247, American Political Culture; 3249, American Political Thought; 3250, Group Conflict and Cooperation in U.S. Politics; 3260, Introduction to American Law; 3272W, The War in Iraq, 2003–2011; 3891, Topics in Contemporary Politics; 3893, Selected Topics of American Government; 3897, Selected Topics (when an American topic is offered).

RELIGIOUS STUDIES: 1100, Introduction to African American Religious Traditions; 1190W, Introduction to Southern Religion and Culture; 3119, Martin Luther King, Jr., and the Social Roles of Religion; 3142, Slave Thought and Culture in the American South; 3304W, Evangelical Protestantism and the Culture Wars.

SOCIOLOGY: 3201, Cultural Consumption and Audiences; 3204, Tourism, Culture, and Place; 3207, Popular Culture Dynamics; 3221, The Family; 3222, Sociology of Religion; 3223, Schools and Society: The Sociology of Education; 3233, Contemporary American Society; 3301, Society and Medicine; 3322, Immigration in America; 3601, Self, Society, and Social Change; 3602, Change and Social Movements in the Sixties; 3603, Women and Social Activism; 3604, American Social Movements; 3611, Women and the Law; 3616, Women and Public Policy in America; 3621, Criminology; 3622, Delinquency and Juvenile Justice; 3624, Prison Life; 3702, Racial and Ethnic Minorities in the United States; 3722, Gender in Society; 3724, Gender Identities, Interactions, and Relationships; 4961, Seminars in Selected Topics (when an American topic is offered).

SPANISH AND PORTUGUESE: 3375, Film and Culture in Latin America; 3835, Latino Immigration Experience; 4750, Afro-Hispanic Literature.

THEATRE: 1811, Marshals, Mobsters, Monsters, Magnums, and Musicals: American Movie Genres; 2204, Histories of Theatre and Drama III: The

U.S. Stage.

Anthropology

CHAIR Steven A. Wernke

DIRECTOR OF UNDERGRADUATE STUDIES Jacob J. Sauer

DIRECTOR OF GRADUATE STUDIES Jada Benn-Torres

PROFESSORS EMERITI Tom D. Dillehay, William R. Fowler, Lesley Gill, Thomas A. Gregor, Ronald Spores

PROFESSORS Arthur A. Demarest, Edward F. Fischer, , Tiffiny A. Tung

ASSOCIATE PROFESSORS Jada Benn-Torres, Carwil Bjork-James, Beth A. Conklin, Markus Eberl, T. S. Harvey, Norbert Ross, Steven A. Wernke

ASSISTANT PROFESSORS Sophie Bjork-James, Ari A. Caramanica, , Rebeca Gamez-Djokic, Monica H. Keith, Kimberly D. McKinson, Gabriel Torres Colón, Michelle E. Young

PRINCIPAL SENIOR LECTURER Mareike Sattler

SENIOR LECTURER Jacob J. Sauer

LECTURER Tiffany B. Saul

COURSES OFFERED: ANTH, KICH

Anthropology is the study of human diversity in all times and places. It brings together perspectives from the sciences and humanities to illuminate different aspects of the human past, the human body, and contemporary social life. Global perspectives, fieldwork and experiential learning, and concerns with ethics, justice, and social well-being are hallmarks of anthropology.

Vanderbilt's program has a strong research focus in Latin America and the Caribbean, and among historically marginalized groups, especially indigenous peoples, and descendants of the African diaspora.

Students majoring in anthropology take courses in several subfields, each of which looks at humanity from a different perspective. Cultural anthropology examines the relationships, beliefs, values, and political-economic practices that shape individual behavior, community life, and power in modern societies. Archaeology studies societies through their material remains, enabling long-term perspectives on the human past as well as connections to present-day descendant communities. Linguistics explores relations between language and culture. Biological anthropology examines topics such as community health in the past and present, forensic science, genetics, evolution, human biology, and bioethics. Courses cluster around themes of cross-cultural health, biology, food, and medical systems; inequality, power, and social-political relations; material culture, human-environment relations, and spatial analysis; religion and politics; and worldviews, language, and cognition. Many courses are interdisciplinary in nature, with connections to programs such as Biology; Earth and Environmental Science; Medicine, Health, and Society; Human and Organizational Development; History; Classics and Mediterranean Studies; Sociology; Jewish Studies; African American and Diaspora Studies; Latin American Studies; Asian Studies, and others, and attracts students from all four Undergraduate colleges. Unless indicated otherwise in the course description, anthropology courses have no prerequisites and are open to all majors and non-majors.

Knowledge of the diversity of human histories and lifeways is vital to imagining alternative paths to a better society. Anthropology develops this knowledge through experiential learning that challenges students to go beyond the familiar, to see, understand, create, and interact in new ways. This preparation is useful in all professional careers that involve understanding human behavior, working with people from different backgrounds, analyzing complex information, and thinking holistically about the conditions that shape people's lives.

Program of Concentration in Anthropology

The major in anthropology requires completion of at least 30 credit hours of course work, as follows:

1. *6 credit hours.* Two 1000-level surveys selected from the subfields of anthropology: 1101 (Cultural Anthropology), 1201 (Archaeology), 1301 (Biological Anthropology), 1601 (Linguistic Anthropology). A course in a third subfield is strongly recommended (in consultation with the adviser).
2. *3 credit hours*. A seminar on anthropological theory (2101 or 2102). The seminar may not be used to count toward theme credit below.
3. *3 credit hours.* A course on anthropological methods; this class may not count towards the theme requirement. Courses that satisfy the methods requirement include 2211, 2601, 2602, 2602W, 2603, 3120, 3125, 3142, 3150, 3260, 3260W, 3261, 3262, 3347, 3372, 3860W, 3865, 3866, 3867, 3868, 4152, 4160, 4373. Other anthropology courses, including those at the 5000- and 6000-level, can count in consultation with the adviser and instructor.
4. *12 credit hours.* Students take four upper-level courses from a predesigned theme or from a theme that they design in consultation with their adviser:
    A. Environment, landscape, and place (2108, 2109, 2113, 2114, 2117W, 2150, 2160, 2160W, 2170W, 2214, 2220, 2220W, 2221, 2222, 2223, 2224, 2225, 2226W, 2227, 2228W, 2230, 2231, 2242, 2242W, 2275, 2370, 2380W, 2381W, 3121, 3122, 31363138, 3200, 3240, 3250, 4154, 4155)
    B. Healing, medicine, and culture (2113/W, 2227, 2342, 2370, 2371, 3121, 3125, 3132, 3138, 3141, 3143, 3144, 3145, 3343, 3344, 3345, 3346, 3371, 3372, 3401W, 4201W, 4345, 4373)

C. Social politics and power (2105, 2106, 2108, 2109, 2110, 2116W, 2117W, 2120, 2130, 2150, 2170W, 2220, 2220W, 2223, 2225, 2226W, 2231, 2242, 2275, 2342, 2370, 2375, 2380W, 2381W, 2385W, 2400, 2602W, 2800, 3050, 3121, 3122, 3125, 3130, 3132, 3133, 3134, 3135, 3136, 3138, 3140, 3144, 3145, 3161, 3162, 3202, 3241, 3232, 3243, 3250, 3343, 3345, 4152, 4153)
D. Identity, ethnicity, gender (2105, 2106, 2108, 2110, 2113W, 2114, 2117W, 2120, 2130, 2160/W, 2170W, 2220/W, 2227, 2229W, 2230, 2231, 2242/W, 2275, 2370, 2375, 2380W, 2381W, 2385W, 2400, 2602W, 3050, 3121, 3122, 3132, 3134, 3135, 3144, 3145, 3202, 3243/W, 3241, 3250, 3343, 3346, 3401W, 4152, 4155, 4156, 4201W, 4345, 4373)
E. Biocultural foundations in health, genetics, forensics, and ethics (2105, 2110, 2117W, 2170W, 2220/W, 2227, 2228W, 2275/W, 2342, 2370, 2371, 2375, 2380W, 2400, 3121, 3122, 3134, 3138, 3141, 3143, 3144, 3145, 3162, 3262, 3344, 3345, 3346, 3347, 3371, 3372, 3401W, 4156, 4201W, 4345, 4373)
F. Language, cognition, and culture (2160/W, 2170W, 2380W, 2385W, 2601, 2602, 2602W, 2603, 3140, 3145, 3150/W, 3243/W, 3620, 3622/W, 4155, 4201W; KICH 1101, 1102, 2201, 2202)

5. *3 credit hours*. One capstone experience in engaged anthropology. In consultation with their adviser, students may fulfill this requirement by taking a formal course (3125) or by completing an independent study, internship, or honors thesis, or by doing a special capstone project in any 2000-level or higher anthropology course with the approval of their adviser and the course instructor.
6. Minimum 3 credit hours of electives chosen from ANTH courses not already used to satisfy the requirements listed above, to total 30 credit hours toward the major.
7. With the approval of the student's major adviser, a maximum of 3 credit hours for a course taken in another department or program may be counted toward the major requirement. A variety of courses is possible, including but not limited to those listed below. In each case, the course must be relevant to the student's program and the student must receive the approval of the director of undergraduate studies: African American and Diaspora Studies 2178, 3178; Biological Sciences 2205; Classics 1020, 1150, 2180, 2200, 2210, 2250, 2260, 2270, 2300, 3030, 3100, 3110, 3310, 3710, 3730; History 1270, 2490; History of Art and Architecture 1330, 2210; Latin American Studies 2301, 2601; Mathematics 1010, 1011; Medicine, Health, and Society 1930, 2130, 2240, 2250, 2420, 2430, 3010, 3020, 3110, 3140, 3150, 3210, 3212, 3220, 3250; Music Literature 1100, 1105, 2110; Religious Studies 4554; Sociology 3001, 3221, 3232, 3311, 3313, 3314; Spanish 3360.

Honors Program

The Honors Program in Anthropology allows exceptional undergraduate students to undertake independent research on a topic in consultation and mentorship with faculty members. This program is open to all Anthropology majors with junior standing who have a 3.3 GPA in all general University courses and Anthropology courses, and who are approved for acceptance into the Honors Program by Department faculty. Completion of the program requires:

1. 3-6 credit hours in ANTH 4998 (Honors Research, select the section under your adviser's name), evaluated by the Honors Thesis Adviser, generally in the fall semester of the student's senior year. If the student plans to graduate in December, they may take 4998 in the spring semester.
2. 3-6 credit hours in ANTH 4999 (Honors Thesis), evaluated by Honors Thesis Adviser, generally in the spring semester of the student's senior year. If the student plans to graduate in December, they may take 4999 in the fall.
3. Submission of a written thesis, evaluated by the student's Honors Committee.
4. Oral presentation of the thesis (15-20 mins.), which includes invited guests and members of of the department, evaluated by the student's Honors Committee.
5. Oral examination (defense) of the thesis, administered by the student's Honors Committee, usually after the public presentation.

The honors thesis hours are expected to be in excess of the 30 hours required for the Major in Anthropology and are typically done in the student's senior year. This timeline may be modified after consultation with the thesis adviser, Departmental Director of the Honors Program, and Faculty approval.

Students meeting these requirements receive Honors or High Honors in Anthropology, depending on the quality of their thesis, grades in anthropology courses, and examination results. Successful Departmental Honors students will receive a Vanderbilt diploma that records Honors or High Honors in Anthropology.

Minor in Anthropology

The minor in anthropology requires 18 credit hours of course work, as follows:

1. *3 credit hours*. One introductory course from one of the four subfields in Anthropology: 1101 (cultural anthropology), 1301 (biological anthropology), 1201 (archaeology), 1601 (linguistics).
2. *3 credit hours*. One methods or one theory course listed in the major; see above.
3. *12 credit hours*. Four courses from a theme in the major designed in consultation with the adviser; see above.

Arabic

SENIOR LECTURERS M. Issam Eido, Bushra Hamad

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language. Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

COURSES OFFERED: ARA

Art

CHAIR Mark Hosford

DIRECTOR OF UNDERGRADUATE STUDIES Angus Galloway

PROFESSORS EMERITI Michael Aurbach, Marilyn L. Murphy

PROFESSORS Maria Magdalena Campos-Pons, Mel Ziegler

ASSOCIATE PROFESSORS Mark Hosford, Vesna Pavlović

ASSISTANT PROFESSOR Raheleh Filsoofi

ASSOCIATE PROFESSOR OF THE PRACTICE Jana Harper

ASSISTANT PROFESSOR OF THE PRACTICE Angus Galloway

PRINCIPAL SENIOR LECTURER, RETIRED Susan DeMay

SENIOR LECTURER

LECTURERS Jose Luis Benavides, Alex Blau, Patrick DeGuira, Kimea Ferdowski Kline, Vadis Turner, John Warren, Tom Williams

Affiliated Faculty

ASSOCIATE PROFESSOR Jonathan Rattner

COURSES OFFERED: ARTS

Courses in art are offered in a variety of media, which provide wide-ranging methods and perspectives. Our courses emphasize creative and critical approaches to learning. The department of art offers a rigorous, socially minded, and research-driven curriculum. Students engage in an immersive laboratory of fearless experimentation and challenge the rapidly expanding role of art in our society. Through trans-disciplinary thinking and experimental methodologies, students utilize a range of artistic disciplines in a state-of-the-art facility. Equal emphasis is placed on both individual and collective exploration, where students are encouraged to develop relationships across the university and broader communities.

Many students will use the program in art as a foundation for careers in which creativity and visual studies are especially valued, as the basis for advanced training in professional schools (such as art, architecture, museum studies), and for employment in galleries, museums, commercial art, or design-related fields. An important goal of the department is to help students become readers of the rich visual environment in our culture throughout their lives, as well as to encourage creative approaches to learning in all disciplines.

The Department of Art offers several opportunities for extracurricular activities in the arts including a student-run art gallery, and Space 204 arts laboratory which hosts exhibitions and workshops throughout the year. Studio VU lecture series brings some of the most important artists working today to campus for lectures and one-on-one studio visits with students.

Since 1984 the Department of Art has supervised the Margaret Stonewall Wooldridge Hamblet Award given to an eligible senior art major. This prestigious award provides the means for travel and independent art activity for one year, culminating in a one-person exhibition at Vanderbilt. Our immersive program includes both junior and senior major trips to New York and other important art destinations.

Many other prizes are awarded in our department. The Allan P. Deloach Memorial Prize in Photography was established in 2000 in memory of Allan Deloach (B.A. 1963) by two of his colleagues at IBM. This cash award is open to any student who has taken a studio class in any discipline at Vanderbilt. Midsouth Ceramics awards are given to the top three ceramic projects in the annual open house, and the Plaza Artists Materials awards are given to four students each year. All competitions are judged by outside professional artists.

Program of Concentration in Art

The art major requires 30 credit hours and presents students the opportunity to explore their ideas conceptually, as well as to learn the technical skills involved in the creation of art. The program offers a wide range of classes and media. Our students are offered a strong grounding in traditional processes such as drawing, painting, ceramics, and sculpture, as well as the opportunity to explore contemporary processes involving video, performance, digital photographic, and new media, installation, and social interactive art practice. Our diverse faculty utilizes a wide range of teaching styles and aesthetic philosophies. We consider how ideas have been developed through the centuries as well as how specific techniques have been used to enrich the expression of an idea. In addition to modern art history offerings, art majors are encouraged to take courses in pre-Renaissance, non-Western art history, philosophy of aesthetics, and film. The Contemporary Art Maymester offers an opportunity to study contemporary art in a concentrated manner.

Requirements for the Program of Concentration in Art

Foundation Requirement (3 credit hours)

- ARTS 1101, 1102, or 1104

Studio Requirements (15 credit hours)

- Any **ARTS** courses with the exception of ARTS 1099 or ARTS 1800.

Within the 15 credit hours, students must take at least one 2000-level or higher ARTS course.

Related Requirement (6 credit hours), which must include one course (3 credit hours) of each of the following:

- ARTS 1800, Sources of Contemporary Art
- Any HART course or one course from the following: ARTS 1099; CMA 1600, 2300; PHIL 3014

The department highly recommends taking ARTS 1800, Sources of Contemporary Art course prior to the senior year.

Directed Study (6 credit hours)

- ARTS 3970, Directed Study: Senior Show and Contemporary Practices
- ARTS 3971, Independent Research: Senior Show

Majors are required to complete the Independent Research course, ARTS 3971, their senior year. This course is designed specifically to help prepare majors for their Senior Show and is typically taken in the second semester of the senior year. No other independent research/study course may be counted toward the major.

Honors Program in Art

The Honors Program in the Department of Art offers an opportunity to art majors to pursue their interest in art on a higher level. To be admitted to the Honors Program in Art, students must have:

- At least a 30 cumulative GPA.
- At least a 5 GPA in courses that count toward the major in art.
- Completed the sophomore year.

Students interested in pursuing the honors program should contact the director of undergraduate studies. Application materials must be submitted to the director of undergraduate studies in the applicant's junior year; applications may be submitted electronically. Applications must include ten digital images of recent work with written explanations for each image. Applicants will be notified in writing of the department's decision.

Each honors student shall have a committee consisting of one faculty member appointed by the department chair, the student's selected honors adviser, and the director of undergraduate studies.

Requirements for graduation with honors in art:

1. Successful completion of the requirements for the major in art,
2. During the senior year the student is required to register for ARTS 4998 (3 credit hours) in the first semester and 4999 (3 credit hours) in the second semester in order to complete a written thesis, expanding concepts explored in the senior exhibition.
3. Successful oral defense of the thesis and senior exhibition during the final semester of undergraduate study.
4. At least a final 3.30 cumulative GPA.
5. At least a final 3.5 GPA in courses that count toward the major in art.

Minor in Art

The minor in art requires 18 credit hours of course work, including the following:

- HART 1105 or ARTS 1800
- ARTS 1102 (Drawing and Composition I); and four other ARTS courses, with at least one at the 2000-or-higher level.

Asian Studies

CHAIR Gerald Figal

DIRECTOR OF UNDERGRADUATE STUDIES Pengfei Li

PROFESSORS Robert Campany, Gerald Figal

ASSOCIATE PROFESSORS Ben Tran

ASSISTANT PROFESSORS Mabel Gergan, Mark John Sanchez, We Jung Yi

MELLON ASSISTANT PROFESSOR Vivian Shaw

PRINCIPAL SENIOR LECTURER Xianmin Liu

SENIOR LECTURERS Divya Chaudhry, Yinghui Guo, Seok Bae Jang, Pengfei Li, Elliott McCarter, Asami Nakano, Hideko Shimizu, Qing Wei, Ji You Whang

SENIOR LECTURER EMERITUS James Auer

LECTURERS Heuijung Hur, Nozomi Imai

Interdepartmental Faculty

PROFESSOR Yoshikuni Igarashi (History)

PROFESSOR EMERITUS Tony K. Stewart (Religious Studies)

ASSOCIATE PROFESSORS Brett Benson (Political Science), Peter Lorge (History), Tracy Miller (History of Art and Architecture), Ruth Rogaski (History), Samira Sheikh (History), Lijun Song (Sociology and Medicine, Health, and Society), Anand V. Taneja (Religious Studies)

ASSISTANT PROFESSORS Calynn Dowler (Religious Studies), Bohyeong Kim (Communication Studies), Adeana McNicholl (Religious Studies), Isidora Miranda (Blair School of Music), Akshya Saxena (English), Meng Zhang (History)
MELLON ASSISTANT PROFESSOR Boyoung Chang (History of Art and Architecture)
SENIOR LECTURER Susan Dine (History of Art and Architecture)

COURSES OFFERED: ASAM, ASIA, CHIN, HNUR, JAPN, KOR, SNSK, TBTN

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language. Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

The Department of Asian Studies provides students with a foundation in the languages, cultures, and societies of Asia and the Asian diaspora necessary to pursue a career among a wide host of global companies, institutions, and agencies that do business in the United States and abroad with the many countries of Asia. Rich in diverse histories and cultures, present-day Asia and the Asian diaspora are at the center of the global future. A degree in Asian Studies equips its students with the linguistic competence and cultural knowledge to join in that global future, whether it be as a foreign press correspondent, investment banker, video game designer, translator/interpreter, educator, diplomat, tour operator, ad firm consultant, or traditional Chinese medicine practitioner. With the study of modern Asian languages at its core, the program embraces a wide variety of courses in the art, culture, economics, history, film and media, politics, religion, medicine, and sociology of East Asia, South Asia, Southeast Asia, Asian America, and Asian diasporic communities throughout the world. Through their teaching and research, faculty members promote a better understanding of multiple facets of life in Asia and the region’s past and present relationship with the rest of the world.

Majors and minors are strongly encouraged to complete a study abroad program in Asia. Up to 6 credit hours of Asia-related courses from Vanderbilt-approved study abroad programs may be applied toward the major or minor upon approval of the department chair or director of undergraduate studies. Additional study abroad credit hours may be granted on a case-by-case basis at the discretion of the chair or DUS. Students should consult with the chair or DUS before applying to a study abroad program.

Program of Concentration in Asian Studies

The major in Asian studies requires a minimum of 36 credit hours of course work and is designed to ensure that graduates have both depth and breadth in their understanding of Asia.

For the major in Asian studies, students must formally declare an area of concentration at the time the major is declared (China, Japan, Korea, or South Asia) and complete at least 36 credit hours from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in an Asian language taught in the Department of Asian Studies at the 3301 (Advanced I) level or above. Asian languages not offered by the Asian studies department require the

approval of the department chair or the director of undergraduate studies.
2. At least 9 non-language credit hours of courses in area of concentration.
3. At least 6 non-language credit hours of courses eligible for Asian Perspectives.
4. No more than 18 credit hours of courses in any Asian language may be applied to the total 36 credit hours.

Program of Concentration in Asian American and Asian Diaspora Studies

For the major in Asian American & Asian Diaspora Studies, students must complete at least 36 credit hours from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in an Asian language taught in the Department of Asian Studies at the 2202 (Intermediate II) level or above. Asian languages not offered by the Asian studies department require the approval of the department chair or the director of undergraduate studies.

2. At least 12 credit hours of Asian American & Asian Diaspora-eligible courses (code "AA" on Asian Studies course list, including ASAM 2101 or ASAM 2102.

3. At least 6 credit hours of courses eligible for Asian Perspectives at the 3000-level or higher.

4. No more than 18 credit hours of courses in any Asian language may be applied to the total 36 credit hours.

Advanced Placement credits in language do not count toward credit hours required for the majors or minors, but can figure into the assessment of initial placement within a language track.

Honors Program in Asian Studies

Students interested in the Honors Program in Asian Studies should consult with Asian Studies department chair or the director of undergraduate studies no later than the fall semester of their junior year to discuss qualifications and requirements. In addition to following the requirements set by the College of Arts and Science, the following must be satisfied:

1. All of the requirements for the major in Asian studies.
2. 3 credit hours of ASIA 3980 Juniors Honors Readings. If ASIA 3980 is not offered, this requirement may be substituted by an alternative course, with approval by the Asian Studies department chair or the director of undergraduate studies.
3. ASIA 4998 (3 credit hours) and 4999 (3 credit hours). Honors Research must be taken while in residence at Vanderbilt. The candidate will write an honors thesis while completing the two-semester Honors Research sequence. The honors thesis is a research paper or creative production on a topic defined by the student in consultation with a principal faculty adviser. At least two Asian Studies departmental or interdepartmental faculty, including the principal faculty advisor, serve as the candidate’s Honors Committee. The committee assesses on-going progress on the thesis and administers the oral examination.

Note: 3980, 4998, and 4999 may count toward the 36 credit hours required for the major.

1. A minimum 3.30 cumulative grade point average with a minimum 3.50 grade point average in courses that count toward the major in Asian Studies upon completion of the Honors requirements.
2. An oral examination on the thesis typically scheduled within the two months prior to graduation.

Study abroad in a country relevant to the Honors Research project is strongly recommended, but not required.

Minor in Asian Studies

The minor in Asian Studies provides a broad knowledge of the languages, literatures, politics, histories, film and

media, arts, and religions of China, Japan, Korea, and South Asia. Students cannot combine the Asian Studies minor with other minors within the Asian Studies Department.

For the minor in Asian Studies, students must complete at least 17 credit hours from the Asian Studies Course List (see below), according to these rules:

1. At least 5 credit hours in any Asian languages taught in the Asian Studies Department at the 2201 (Intermediate I) level or above
2. At least 6 credit hours of History Survey Courses
3. At least 3 credit hours of Humanities Courses
4. At least 3 credit hours of Social Sciences Courses
5. No more than 5 credit hours of any Asian language courses taught in the Asian Studies Department may be applied to the total 17 credit hours

Minor in Chinese Language and Culture

The minor in Chinese Language and Culture is anchored by a firm foundation in language study that is complemented by electives in art, history, literature, film and media, politics, and religion. Students cannot combine the Chinese Language and Culture minor with other minors within the Asian Studies Department.

For the minor in Chinese Language and Culture, students must complete at least 18 total credit hours in China Concentration (CC) courses from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in Chinese language at the 3301 (Advanced I) level or above
2. No more than 13 credit hours of Chinese language (CHIN) courses may be applied to the total 18 credit hours

Minor in Japanese Language and Culture

The minor in Japanese Language and Culture is anchored by a firm foundation in language study that is complemented by electives in art, history, literature, film and media, politics, and religion. Students cannot combine the Japanese Language and Culture minor with other minors within the Asian Studies Department.

For the minor in Japanese Language and Culture, students must complete at least 18 total credit hours in Japan Concentration (JC) courses from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in Japanese language at the 3301 (Advanced I) level or above
2. No more than 13 credit hours of Japanese language (JAPN) courses may be applied to the total 18 credit hours

Minor in Korean Language and Culture

The minor in Korean Language and Culture is anchored by a firm foundation in language study that is complemented by electives in history, literature, film, and media. Students cannot combine the Korean language and culture minor with other minors within the Asian Studies Department.

For the minor in Korean Language and Culture, students must complete at least 18 total credit hours in Korean Concentration (KC) courses from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in Korean language at the 3301 (Advanced I) level or above
2. No more than 13 credit hours of Korean language (KOR) courses may be applied to the total 18 credit hours

Minor in South Asian Language and Culture

The minor in South Asian Language and Culture is anchored by a firm foundation in language study that is

complemented by electives in art, history, literature, film and media, politics, and religion. Students cannot combine the South Asian language and culture minor with other minors within the Asian Studies Department.

For the minor in South Asian language and culture, students must complete at least 18 total credit hours in South Asia Concentration (SA) from the Asian Studies Course List (see below), according to these rules:

1. At least 3 credit hours in a South Asian language (Hindi-Urdu or Sanskrit) at the 3301 (Advanced I) level or above
2. No more than 13 credit hours of South Asian language (HNUR or SNSK) courses may be applied to the total 18 credit hours

Minor in Asian American & Asian Diaspora Studies

The minor in Asian American & Asian Diaspora Studies provides a broad knowledge of the histories, cultures, societies, and languages of Asian American and global Asian diasporas. Students cannot combine the Asian American & Asian Diaspora Studies minor with other minors within the Asian Studies Department.

For the minor in Asian American & Asian Diaspora Studies, students must complete at least 17-18 credit hours from the Asian Studies Course List (see below), according to these rules:

1. 3 credit hours in either ASAM 2101 or ASAM 2012

2. At least 3 credit hours in any Asian languages taught in the Asian Studies Department at the 2201 (Intermediate I) level or above

3. At least 6 credit hours of Asian American & Asian Diaspora (AA) courses and either

4A: 6 credit hours of courses eligible for Asian Perspectives, to total 18 credit hours (not double counting courses above), OR

4B: Up to 5 credit hours of any Asian language courses taught in the Asian Studies Department may be applied to total 17 credit hours.

Asian Studies Course List

All courses on this list count toward the credit-hour requirements for the major and the minors within the Department of Asian Studies. Their eligibility for specific requirements within the major and minors is indicated by the following codes:

China Concentration = CC

Japan Concentration = JC

Korea Concentration = KC

South Asia Concentration = SA

Asian Perspectives = AP

Asian American/Asian Diaspora = AA

History Survey Course = HS

Humanities Course = HU

Social Science Course = SS

Any given course may be applied to only one category of requirement even if it may be eligible for more than one.

Courses marked with an * require approval from the Asian Studies chair or director of undergraduate studies.

Chinese Language Courses

CHIN 1011. Basic Chinese (CC)

CHIN 1012. Basic Chinese (CC)

CHIN 1101. Elementary Chinese I (CC)

CHIN 1102. Elementary Chinese II (CC)

CHIN 1231. Calligraphy (CC, HU)

CHIN 2201. Intermediate Chinese I (CC)

CHIN 2202. Intermediate Chinese II (CC)

CHIN 2211. Chinese for Heritage Learners I (CC)

CHIN 2212. Chinese for Heritage Learners II (CC)

CHIN 3301. Advanced Chinese I (CC)

CHIN 3302. Advanced Chinese II (CC)

CHIN 3302W. Advanced Chinese II (CC)

CHIN 3851. Independent Study (CC)*

CHIN 3852. Independent Study (CC)*

CHIN 4001. Fourth-year Conversational Chinese (CC)

CHIN 4002. Fourth-year Conversational Chinese (CC)

CHIN 4401. Business Chinese I (CC)

CHIN 4402. Business Chinese II (CC)

CHIN 4403. Readings in Modern Chinese Media (CC)

CHIN 4404. Readings in Modern Chinese Media (CC)

CHIN 4405. Classical Chinese Literature and Philosophy. (CC, HU)

CHIN 4406. Readings in Modern Literary Chinese (CC, HU)

Hindi-Urdu Language Courses

HNUR 1101. Elementary Hindi-Urdu I (SA)

HNUR 1102. Elementary Hindi-Urdu II (SA)

HNUR 2201. Intermediate Hindi-Urdu I (SA)

HNUR 2202. Intermediate Hindi-Urdu II (SA)

HNUR 3301. Advanced Hindi-Urdu I (SA)

HNUR 3302. Advanced Hindi-Urdu II (SA)

HNUR 3851. Independent Study (SA)*
HNUR 3852. Independent Study (SA)*

Japanese Language Courses

JAPN 1011. Basic Japanese I (JC)

JAPN 1012. Basic Japanese II (JC)

JAPN 1013. Practical Japanese Conversation (JC)

JAPN 1101. Elementary Japanese I (JC)

JAPN 1102. Elementary Japanese II (JC)

JAPN 1231. Tadoku: Extensive Reading in Japanese (JC)

JAPN 2201. Intermediate Japanese I (JC)

JAPN 2202. Intermediate Japanese II (JC)

JAPN 2232. Japanese through Manga (JC)
JAPN 2233. Language through Japanese Food Culture (JC, HU)

JAPN 3301. Advanced Japanese I (JC)

JAPN 3302. Advanced Japanese II (JC)

JAPN 3851. Independent Study (JC)*

JAPN 3852. Independent Study (JC)*

JAPN 3891. Special Topics in Advanced Japanese (JC)

Korean Language Courses

KOR 1101. Elementary Korean I (KC)

KOR 1102. Elementary Korean II (KC)

KOR 2201. Intermediate Korean I (KC)

KOR 2202. Intermediate Korean II (KC)

KOR 3301. Advanced Korean I (KC)

KOR 3302. Advanced Korean II (KC)

KOR 3851. Independent Study (KC)

KOR 3852. Independent Study (KC)

Sanskrit Language Courses

SNSK 1101. Elementary Sanskrit I (SA, AP)

SNSK 1102. Elementary Sanskrit II (SA, AP)

SNSK 2201. Intermediate Sanskrit I (SA, AP)

SNSK 2202. Intermediate Sanskrit II (SA, AP)

SNSK 3301. Advanced Sanskrit I (SA, AP)

SNSK 3302. Advanced Sanskrit II (SA, AP)

Asian Studies

ASIA 1001. Commons iSeminar: Cultures of India & Japan (AP, HU)
ASIA 1111. First-Year Writing Seminar (as appropriate)*

ASIA 1201. Writing Southeast Asia (AP, HU)

ASIA 1680. Inside China (CC, SS)

ASIA 1682. Chinese Culture through Tai Chi and Qi Gong (CC)

ASIA 1780. Health and Well-being at the Margins of Indian Society (SA, SS)

ASIA 1881W. The Body in Modern Japanese Culture (JC, HU)

ASIA 2100W. Fashioning the Self: Coming of Age and Asian Modernities (AP, HU)

ASIA 2210W. Hollywood Hanoi (AP, HU)

ASIA 2220. Violence and Media in Southeast Asia (AP, HU)

ASIA 2302. Popular Culture of South Asia (SA, HU)

ASIA 2303. Classical India in the Modern World (SA, HS, AP)

ASIA 2304. The Bhagavad Gita (SA, HU)
ASIA 2306. Environment & Development in South Asia (SA, SS, AP)
ASIA 2307. Transnational South Asia (AA, SA, SS, AP)
ASIA 2308. Narratives of Disaster & Apocalypse (AP)

ASIA 2411. Cultural History of Korea (KC, HS, AP)

ASIA 2412. Global Korean Cinema (KC, HU, AP)

ASIA 2413. History of Modern Korea (KC, HS, AP)

ASIA 2414. Food and Family in Korean Pop Culture (KC, HU, AP)

ASIA 2415W. Blood, Sweat, and Tears in Korean Literature (KC, HU)
ASIA 2416. The Korean War through Film & Fiction (KC, HU)

ASIA 2511. Popular Culture in Modern Japan (JC, HU)

ASIA 2512. Explorations of Japanese Animation (JC, HU)

ASIA 2513W. Media Monsters in Contemporary Japan (JC, HU)
ASIA 2514W. Contemporary Japan through Film & Fiction (JC, HU)

ASIA 2605. Romancing the Nation in Modern Chinese Literature (CC, HU)

ASIA 2606. Martial Tradition in Chinese Literature (CC, HU)

ASIA 2607. Self and Society in Pre-modern Chinese Literature (CC, HU)

ASIA 2608. Chinese Drama: 13th to 20th Centuries (CC, HU)

ASIA 2609W. Writing and Gender in Traditional China (CC, HU)
ASIA 2610. Overseas Encounters (AA, AP, HU)
ASIA 2620. Chinese Culture through Calligraphy (CC, HU)

ASIA 2630. Chinese Medicine (CC, SS)

ASIA 3151. The Third World and Literature (AP, HU)

ASIA 3155. Blackness and the Asian Century (AA, AP, HU)

ASIA 3633. Self-Cultivation in Ancient China (CC, HU)

ASIA 3851. Independent Study (as appropriate)*

ASIA 3852. Independent Study (as appropriate)*

ASIA 3891. Special Topics (as appropriate)*

ASIA 3892. Special Topics (as appropriate)*

ASIA 3980. Junior Honors Readings (as appropriate)*

ASIA 4998. Honors Research (as appropriate)*

ASIA 4999. Honors Research (as appropriate)*

Asian American Studies
ASAM 2101. Asian American History until 1924 (AA, AP)
ASAM 2102. Asian American History, 1924 to the Present (AA, AP)
ASAM 2106. Sociology of Asian America (AA, AP)
ASAM 2107. Social Movements in Asia and Asian America (AA, AP)
ASAM 3101. Southeast Asian Americans (AA, AP)
ASAM 3102. Cold War Asian America (AA, AP)
ASAM 3106. Race and the Environment in Asian America (AA, AP)
ASAM 3107. Science, Technology, and the Body in Global Asia (AA, AP)

Cinema and Media Arts

CMA 3892. Special Topics in the Study of Film* (as appropriate)*

English

ENGL 1210W. Prose Fiction: Forms and Techniques (as appropriate)*

ENGL 1260W. Introduction to Literary and Cultural Analysis (as appropriate)*

ENGL 2319W. World Literature, Modern (as appropriate)*

ENGL 3662. Asian American Literature (AA, AP, HU)*

ENGL 3670. Colonial and Post-Colonial Literature (as appropriate)*

ENGL 3670W. Colonial and Post-Colonial Literature (as appropriate)*

History
HIST 1050. East Asia since 1800 (AP, SS, HS)

HIST 1060. Premodern China (CC, SS, HS)

HIST 1070. China from Empire to the People’s Republic (CC, SS, HS)

HIST 1080. Premodern Japan (JC, SS, HS)

HIST 1090. Modern Japan (JC, SS, HS)
HIST 1111 First-Year Writing Seminar (as appropriate)*

HIST 1160. Modern South Asia (SA, SS, HS)

HIST 1161. India Before Europe: 3000 B.C.E–1750 C.E. (SA, SS, HS)
HIST 1162. The East India Company, 1600-1858 (AP, SS)

HIST 1881. The Body in Modern Japanese Culture (JC, HU)

HIST 1882W. Japan Through Historical Fiction (JC, HU)

HIST 2100. Politics and Catastrophe in Modern China (CC, SS)

HIST 2105. Chinese Thought (CC, HU)

HIST 2106. A Global History of Tea (AP, SS)
HIST 2107. Chinese Economic History (CC, SS)

HIST 2108. Environment and Economy in China since 1700 (CC, SS)

HIST 2110. Crisis Simulation in East Asia (AP, SS)

HIST 2111. China and the United States: Intertwined Histories (AP, CC, SS)

HIST 2115. Play and Pleasure in Early Modern Japan (JC, HU)

HIST 2119. The Pacific War in Cinematic Memory (JC, HU)

HIST 2120. Japan’s War and Postwar, 1931–1989 (JC, SS)

HIST 2140. The Mughal World (SA, SS)

HIST 2150. India and the Indian Ocean (SA, AP, SS)

HIST 3090 Tokyo: History and Image (JC, SS)

HIST 3112W. China and the World (CC, AP, SS)

HIST 3220W. Images of India (SA, HU)

History of Art and Architecture

HART 1200. Arts of East Asia (AP, HU)

HART 1205. Arts of South and Southeast Asia (SA, AP, HU)

HART 1210W. Art and Ritual in Asia (AP, HU)

HART 1220. History of Asian Architecture (AP, HU)

HART 2100. Architecture and the Mapping of Empire in Asia (AP, HU)

HART 2110. Arts of China (CC, HU)

HART 2120. Arts of Korea (KC, HU)

HART 2130. Arts of Japan (JC, HU)

HART 2150. East Asian Architecture and Gardens (AP, HU)

HART 2170. Religion and Politics in South and Southeast Asian Art (SA, AP, HU)

HART 2175. Modern and Contemporary Indian Architecture (AP, HU)
HART 2815. Digital Heritage, Methods, and Practice: The Chinese Temple ((CC, HU)

HART 3112. The Arts of China during the Liao-Song Period (CC, HU)

HART 3140. Healing and Art in East Asia. (AP, HU)

HART 3164W. Art of Buddhist Relic and Reliquary (AP, HU)

HART 3172. Himalayan Art: Art of the Divine Abode (AP, HU)

HART 3174. The South Asian Temple (SA, HU)

Human and Organizational Development — International Leadership and Policy

HODI 3260. Education in the Asia-Pacific Region: Development, Reform, and Innovation (AP, SS)

Medicine, Health, and Society

MHS 2310. Chinese Society and Medicine (CC, SS)

Political Science

PSCI 2216. The Chinese Political System (CC, SS)

PSCI 3894. Selected Topics in Comparative Politics (as appropriate)*
PSCI 3895. Selected Topics in International Politics (as appropriate)*

Religious Studies

RLST 1010. Encountering Religious Diversity (AP, HU)
RLST 1111. First-Year Seminar (as appropriate)*
RLST 1500. Introduction to Islam (AP, HU)

RLST 1637. Religions of Tibet and the Himalaya (AP, HU)

RLST 1700. Religions in China (CC, HU)

RLST 1710. Religions of Japan (JC, HU)

RLST 2134. Asian and Asian American Religions in the United States (AP)

RLST 2644. Buddhist Traditions (AP, HU)

RLST 2664. Foundations of Hindu Traditions (SA, AP, HU)

RLST 3561. Islam in South Asia (SA, HU)

RLST 3650. Classical Philosophies of India (SA, HU)

RLST 3669. Sacred Space in the Tibetan World (AP, HU)

RLST 3670W. Buddhism and the State (AP, HU)

RLST 3747. Daoist Tradition (AP, HU)

RLST 3749. Zen Buddhism (AP, HU)

RLST 3753. East Asian Buddhism (AP, HU)

RLST 3775. Chinese Religions through Stories (CC, HU)

RLST 4665. Mythologies and Epics of South Asia (SA, HU)

RLST 4666. Devotional Traditions of South Asia: Hindu, Muslim, Sikh (SA, AP, HU)

RLST 4774. Japanese Mythology (JC, HU)

Biochemistry and Chemical Biology

CO-DIRECTORS Brian O. Bachmann, Alissa Hare

Advisory Committee

PROFESSORS Brandt Eichman (Biological Sciences), Lawrence J. Marnett (Chemistry), John McLean (Chemistry), David W. Wright (Chemistry), David Cortez (Biochemistry)

ASSOCIATE PROFESSOR Bruce M. Damon (Radiology and Radiological Sciences)

ASSISTANT PROFESSOR Lauren Parker Jackson (Biological Sciences)

SENIOR LECTURER Cynthia T. Brame (Biological Sciences), Alissa Hare (Chemistry)

COURSES OFFERED: BCB

The study of chemical processes within living systems is an interdisciplinary enterprise that spans the fields of chemistry, molecular and cellular biology, biophysics, and engineering. Chemical biology and biochemistry use chemical insight, techniques, and tools to study or manipulate biological systems. They are the cornerstones of medical technology and therapeutics. To provide students with training in modern principles at a chemistry-biology interface, Vanderbilt's interdisciplinary major in biochemistry and chemical biology incorporates expertise from multiple departments in the university. Students receive a broad background in the natural sciences (chemistry, biology, physics) and mathematics, followed by fundamental core training in principles of biochemistry and chemical biology that involves both theoretical and laboratory course work. Students then pursue an area of emphasis in either biochemistry or chemical biology through upper-level elective courses. Students participate in independent research in laboratories of biochemistry and chemical biology faculty. Additional research experience is available in the Honors Program.

Program of Concentration

The biochemistry and chemical biology major tracks share fundamental core elements but have a distinct set of foundational courses, track-specific electives, and laboratory requirements. All students are required to complete a set of basic science and mathematics courses. The major consists of 32 credit hours beyond these basic science and mathematics courses. All students complete 12 credit hours of core courses, 14 credit hours of either biochemistry or chemical biology track, and 6 credit hours of general electives. For suggested paths of completion, see the Program in Biochemistry and Chemical Biology website.

Required Math and Science Courses for Both Tracks

(38 credit hours)

Biological Sciences — BSCI 1510, 1511, 1510L, and either 1511L or 1512L

Chemistry — CHEM 2221 or 2211, CHEM 2222 or 2212, CHEM 2221L and CHEM 2222L

Mathematics — MATH 1200 or 1300 and MATH 1201 or 1301

Physics — PHYS 1501 or 1601, PHYS 1502 or 1602, PHYS 1501L or 1601L, and PHYS 1502L or 1602L

Note: These credit hours do not count toward the major. AP credit may satisfy some of these requirements.

Fundamental Core Courses for all Tracks (12 credit hours)

BCB 4965, BSCI 2520, CHEM 3710, CHEM 3320

Tracks (14 credit hours)

Biochemistry Track

Biochemistry Foundations (3 credit hours) — BSCI 4265

Biochemistry Electives (9 credit hours) — BCB 2101, BCB 4320, BSCI 2201, BSCI 2210, CHEM 2100, CHEM 4720

Laboratory (2 credit hours) — BCB 3201

Chemical Biology Track

Chemical Biology Foundations (5 credit hours) — CHEM 2100 and 2100L, BCB 2101

Chemical Biology Electives (6 credit hours) — BCB 4320, BSCI 4265, CHEM 4720

Chemical Biology Laboratory (3 credit hours) — BCB 3201, BCB 4966

General Electives (6 credit hours)

Electives may be chosen from any of the following:

BCB 2101, BCB 3101, 3201, 4320, 4966; BME 2200, 3000, 4400, 4410, 4500; BSCI 2201, 2210, 3230, 3234, 3245, 3247, 3252, 3256, 3270, 3630, 4265, 4266, 4274; CHEM 2100, 3020, 3300, 4230, 4720; CS 1101, 1103, 2204; NSC 2201, 3245, 3260, 3269, 3274, 3891, 4961

Courses taken to fulfill track requirements are not eligible for elective credit.

Honors Program

Students in either Biochemistry or Chemical Biology track may apply to the Honors Program if they hold a minimum cumulative GPA of 3.3 and a GPA of at least 3.4 in courses that count toward the major at the end of their junior year. The purpose of the Honors Program is to provide students with an intensive independent research experience in a host laboratory. Honors candidates must complete two semesters (3 credit hours each semester) of Honors Research (BCB 4999). The successful completion of one semester of BCB 4999 may substitute for the BCB 4965 course requirement. Upon entering the program at the end of the junior year, candidates assemble a committee of the major research adviser and two additional faculty members appropriate to the area of research. As part of the research course work, the candidate will write an honors thesis. At the end of the graduating semester, honors candidates must submit a written thesis and give an oral defense of their research.

Biological Sciences

CHAIR Brandt F. Eichman

VICE CHAIR Katherine L. Friedman

DIRECTOR OF UNDERGRADUATE STUDIES Mark A. Woelfle

DIRECTOR OF GRADUATE STUDIES Julian F. Hillyer

PROFESSORS EMERITI Burton J. Bogitsh, Robert Kral, WallaceM. LeStourgeon, Terry L. Page, Charles K. Singleton, Gerald J. Stubbs, Robley C. Williams Jr.
PROFESSORS Seth R. Bordenstein, Kendal S. Broadie, Kenneth C. Catania, Brandt F. Eichman, Todd R. Graham, Julian F. Hillyer, Carl H. Johnson, Douglas G. McMahon, James G. Patton, Antonis Rokas, Laurence J. Zwiebel
ASSOCIATE PROFESSORS D. Kilpatrick Abbot, Larisa DeSantis, Katherine L. Friedman, Daniel J. Funk
ASSISTANT PROFESSORS Megan G. Behringer, Nicole Creanza, Lauren Parker Jackson, Amanda Lea, Jared T. Nordman, Maulik R. Patel, Lars Plate, Ann Tate, Allison Walker
PRINCIPAL SENIOR LECTURERS A. Denise Due-Goodwin, Mark A. Woelfle, Cynthia T. Brame
SENIOR LECTURERS Amanda R. Benson, Thomas Clements, Jessica Gilpin, Allison Leich Hilbun, James D. Pask
LECTURER Thomas Clements

COURSES OFFERED: BSCI

The biological sciences encompass the study of living organisms and life processes at all levels: ecosystems, populations, individual organisms, tissues, cells, subcellular structures, and molecules. The Department of Biological Sciences offers courses that address all of these levels and programs of study for undergraduates and for graduate students seeking the Ph.D.

For undergraduates, the department offers three majors and a minor. All three majors have honors tracks. The Biological Sciences (BioSci) major is designed for the student seeking a broad base in the biological sciences; it is a highly flexible program that allows a certain amount of specialization in upper-level courses. The Molecular and Cellular Biology (MCB) major is designed for students with an interest in developing an in-depth understanding of how living systems function at the molecular and cellular levels, with upper-level course options ranging in content from biophysics and biochemistry to developmental biology, and to molecular aspects of evolution. The Ecology, Evolution, and Organismal Biology (EEOB) major is designed for students with an interest in the areas of biology that span genomics, ecology, evolutionary biology, comparative genomics, organismal biology, and conservation biology. The department also offers a minor in biological sciences for students majoring in other disciplines. Interested students should consult the director of undergraduate studies.

The department offers undergraduates opportunities for engaging in faculty-led research projects for course credit. Students may receive an introduction to the workings of a scientific laboratory through an internship, or a more intensive, hands-on experience in directed or independent laboratory research. Students on the honors track of any of the three majors carry out a major honors research project and write an honors thesis. More information about the majors and minor offered by the department, the honors track of each major, and research opportunities open to undergraduates is available at our website: as.vanderbilt.edu/biosci.

Students may declare only one of the majors offered by the Department of Biological Sciences; double or triple majors within the department are not permitted. It is strongly recommended that all students take one year of calculus or calculus/statistics, and one year of physics. Students are encouraged to work with their major advisers to choose upper-level courses appropriate to their chosen majors.

General Requirements

- All students in programs of concentration offered by the Department of Biological Sciences must take two semesters of general chemistry and lab (Chemistry 1601–1602 and 1601L–1602L) and two semesters of organic chemistry (Chemistry 2211/2221–2212/2222) and lab (2221L–2222L).
- A total of 30 credit hours of Biological Sciences courses, including the 8 credit hours of 1510–1511 and 1510L and either 1511L or 1512L, is required in all majors.
- Courses numbered below 1500 do not count toward the major or minor.
- Below is a listing of the required courses for the Biological Sciences (BioSci) major, for the Molecular and Cellular Biology (MCB) major, and for the Ecology, Evolution, and Organismal Biology (EEOB) major. Students with specialized interests within either of the specialized majors may substitute one of the intermediate courses with an upper- level course with the permission of the director of undergraduate studies and the Biological Sciences Curriculum Committee (Intermediate Biological Sciences courses: 2101, 2201, 2201L, 2205, 2210, 2210L, 2218, 2219, 2238, 2238L, 2520).
- All majors must complete at least 2 credit hours of 3965, 3850, or 3861, though only one semester of 3965 may count toward the 30 credit hours.
- A total of no more than 7 credit hours of 3850, 3861, or 3961 may count toward the major.
- If option 1 (see below) is used to meet the laboratory requirement, then BSCI 3965 or 2 credit hours of 3850 is required.
- Either BSCI 3229 or BSCI 3270, but not both, may count toward the major or minor.

For Honors, additional requirements must be met. For entry into Honors, students must satisfy the conditions required by the College of Arts and Science for admission to departmental honors programs. Students must have an overall grade point average equal to or greater than 3.3, and a grade point average in courses required for the appropriate biological sciences major equal to or greater than 3.4 at the time of entry. Applications must be approved by a majority vote of the faculty of the department. To receive honors or highest honors in biological sciences, a student in the departmental Honors Program must:

- Complete the requirements for either the MCB, BioSci, or EEOB major, achieving a minimum cumulative

grade point average of 3.4 in all courses that count toward the major;
- Satisfactorily pursue a research project under the supervision of the adviser with a minimum of 10 credit hours of Honors Research, BSCI 4999;
- Give a progress report to the Honors Committee at the end of the first semester of This will consist of a short, written progress report to be distributed to the Honors Committee one week before an oral presentation and meeting with the committee. The meeting must be scheduled before the start of finals week;
- At the end of the second semester of Honors Research, prepare a thesis based on the research project, to be read and evaluated by the Honors Committee;
- Present the thesis orally before the Honors Committee and faculty in the Department of Biological Sciences.

Minor in Biological Sciences

A minor in biological sciences requires a minimum of 18 hours including at least 9 credit hours earned in residence at Vanderbilt. Credit hours for the minor must include BSCI 1510–1511b; 1510L and either 1511L or 1512L; 2210; and one other intermediate course. No more than 2 credit hours of 3860, 3861, 3850, and 3961 may be counted toward the minor.

Specific Requirements for Individual Majors

BIOLOGICAL SCIENCES (BSCI) MAJOR

BSCI 2205, 2210, and one additional intermediate course (2101, 2201, 2218, 2219, 2238 or 2520)

Intermediate Courses

* BSCI 2101 or BSCI 3101 (but not both) can be used to fulfill elective credits. If BSCI 2101 is used to fulfill the intermediate course requirement, then BSCI 3101 can be used to fulfill elective credits.

Laboratory	**Option 1: Lab**	**Option 2: Lab and Research**	**Option 3: Research Intensive**
	2 labs (BSCI 2201L, 2210L, 2218, 2219, or 2238L). See note above regarding BSCI 3965 or 3850.	1 lab plus 2 semesters (at least 6 credit hours total) of directed & independent research (BSCI 3861, 3961, 4999)	At least 12 credit hours of research in directed, independent and as needed, honors research courses (BSCI 3861, 3961, 4999)

ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY (EEOB) MAJOR

BSCI 2205, 2210, and one of the following: 2101*, 2218, 2219, 2238

Intermediate Courses

* BSCI 2101 or BSCI 3101 (but not both) can be used to fulfill elective credits. If BSCI 2101 is used to fulfill the intermediate course requirement, then BSCI 3101 can be used to fulfill elective credits.

Laboratory	**Option 1: Lab**	**Option 2: Lab and Research**	**Option 3: Research Intensive**
	2 labs (one of BSCI 2210L, 2218, 2219, or 2238L; plus one of the following: BSCI 2201L, 2210L, 2218, 2219, or 2238L). See note above regarding BSCI 3965 or 3850.	1 lab (BSCI 2210L, 2218, 2219, or 2238L) plus 2 semesters (at least 6 credit hours total) of directed and independent research (BSCI 3861, 3961, 4999)	At least 12 credit hours of research in directed, independent and, as needed, honors research courses (BSCI 3861, 3961, 4999)

MOLECULAR AND CELLULAR BIOLOGY (MCB) MAJOR

BSCI 2201, 2210, and 2520

Intermediate Courses

BSCI 2101 or BSCI 3101 (but not both) can be used to fulfill elective credits.

Laboratory	**Option 1: Lab**	**Option 2: Lab and Research**	**Option 3: Research Intensive**
	2 labs (one of BSCI 2201L or 2210L is required; plus one of the following: 2201L, 2210L, 2218, 2219, or 2238L). See note above regarding BSCI 3965 or 3850.	1 lab (BSCI 2201L or 2210L) plus 2 semesters (at least 6 credit hours total) of directed and independent research (BSCI 3861, 3961, 4999)	At least 12 credit hours of research in directed, independent and, as needed, honors research courses (BSCI 3861, 3961, 4999)

Biomedical Engineering

CHAIR Michael R. King

ASSOCIATE CHAIR W. David Merryman

DIRECTOR OF UNDERGRADUATE STUDIES Craig Duvall

DIRECTOR OF GRADUATE STUDIES Cynthia Reinhart-King

DIRECTOR OF GRADUATE RECRUITING Yuankai Tao

PROFESSORS EMERITI Robert L. Galloway, Jr., Thomas R. Harris, Paul H. King, K. Arthur Overholser, Robert J. Roselli

PROFESSORS Adam W. Anderson, Daniel Brown, Edward Chaum, André Churchwell, Christos Constantinidis, Benoit M. Dawant, Mark D. Does, Craig Duvall, Todd D. Giorgio, John C. Gore, Scott A. Guelcher, Paul Harris, Frederick R. Haselton, S. Duke Herrell, E. Duco Jansen, Michael R. King, Robert F. Labadie, Bennett A. Landman, Anita Mahadevan-Jansen, Karen Joos, W. David Merryman, Michael I. Miga, Reed Omary, Leon Partain, Cynthia Reinhart-King, Krishnendu Roy, Ashish Shah, James West, John P. Wikswo, Jr.

RESEARCH PROFESSORS Andre Diedrich, Zhaohua Ding, W. Patrick Roach

ADJUNCT PROFESSOR Stacy Klein-Gardner

ADJOINT PROFESSOR Richard Mu

ASSOCIATE PROFESSORS Franz J. Baudenbacher, Leon Bellan, Audrey K. Bowden, Brett C. Byram, Edward Y. Chekmenev, Bruce M. Damon, Edwin Donnelly, William H. Fissell, Deborah Lannigan, Ethan S. Lippman, Victoria L. Morgan, Jeffry S. Nyman, Cynthia B. Paschal, Wellington Pham, John J. Reese, Yuankai Tao, James West, John T. Wilson, Karl Zelik

ASSOCIATE PROFESSORS OF THE PRACTICE Amanda Lowery, Christina C. Marasco

RESEARCH ASSOCIATE PROFESSORS Nick Adams, Justin Baba, Rebecca Cook, Daniel J. France, Mukesh Gupta, Lisa McCawley, Baxter Rogers

ASSISTANT PROFESSORS Jonathan Brunger, James Cassat, Charles Caskey, Catie Chang, Wenhao Deng, Dario Englot, Nicholas Ferell, Giresh Hiremath, Jacob Houghton, Clayton Kaiser, Gregor Neuert, Jack H. Noble, Ipek Oguz, Aron Parekh, Marjan Rafat, Mikail Rubinov, Seth A. Smith, Julie Sterling, Wesley Thayer, Eric R. Tkaczyk, Lauren Woodard, Junzhong Xu, Xin Maizie Zhao, Natalina Zulina

ASSISTANT PROFESSORS OF THE PRACTICE Romina Del Bosque, Joseph Schlesinger

RESEARCH ASSISTANT PROFESSORS Charleson S. Bell, Zhipeng Cao, Logan Clements, Richard D'Arcy, Richard Dortch, Shannon Faley, Yurui Gao, Kevin Harkins, Nidhi Jyotsana, Dmitry Markov, Sinead E. Miller, Bryan Millis, Patricia K. Russ, Teresa K. Sanders, Veniamin Sidorov, Eric Spivey, Zhenjiang Zhang

ADJUNCT ASSISTANT PROFESSORS Valerie Guenst, Kalana Jayawardana

ADJOINT ASSISTANT PROFESSORS Frank Block, Brian C. Evans, Judy T. Lewis, Amber Simpson

INSTRUCTOR Amanda Buck

COURSES OFFERED: BME

The foundations of biomedical engineering are the same as those in other engineering disciplines: mathematics, physics, chemistry, and engineering principles. Biomedical engineering builds on these foundations to solve problems in biology and medicine over the widest range of scales-from the nanoscale and molecular levels to the whole body. Biomedical engineering provides a robust platform for employment in the medical device and instrumentation industries as well as careers in companies that specialize in the development and application of biologics, biomaterials, implants and processes. Our graduates gain entry into nationally recognized graduate

schools for continuing studies in biomedical engineering.

Biomedical engineering is also a rigorous path for admission to and success in medical school for those students willing and able to excel in mathematics, physics, chemistry, biology, physiology, and engineering.

The Department of Biomedical Engineering at Vanderbilt is unique among biomedical engineering programs in its immediate proximity to the world class Vanderbilt Medical Center, located on our compact campus. Our School of Medicine is among the top ten in funding from the National Institutes of Health and includes a National Cancer Institute- recognized Comprehensive Cancer Center, a major children's hospital and a Level I trauma center. This proximity and the strong relationships among faculty across multiple schools stimulate high impact research and provide unique educational and research opportunities for students.

Degree Programs. The Department of Biomedical Engineering offers courses of study leading to the B.E., M.S., M.Eng., and Ph.D. Vanderbilt biomedical engineering is a well-established program with undergraduate degrees granted continuously since 1965. Our undergraduate curriculum undergoes regular review and revision to ensure relevancy and to maintain full ABET accreditation. Students have complete flexibility in the selection of biomedical engineering, technical, and open electives. This allows students to design their own focus areas such as regenerative medicine and tissue engineering, wearables and point-of-care diagnostics, global health, surgery and engineering, robotics and prosthetics, lasers and medicine, medical imaging, biotechnology and nanomedicine, medical technology and entrepreneurship.

Facilities. The Department of Biomedical Engineering is located in Stevenson Center. Undergraduate instructional laboratories are equipped for study of biomedical processes, measurement methods and instrumentation. These facilities are equipped with embedded systems for instrumentation, design, and testing that mirror professional practice. Specialized facilities for biomedical imaging, biophotonics, surgery and engineering, regenerative medicine, nanobiotechnology, and nanomedicine are used both for faculty-led research and instructional purposes.

Undergraduate Honors Program. With approval of the Honors Program director, junior and senior students in biomedical engineering who have achieved a minimum grade point average of 3.5 may be accepted into the undergraduate Honors Program. Students in the program take at least 6 credit hours of 5000-level or above (graduate) biomedical engineering courses, which can be counted toward the 127-hour undergraduate degree requirements as biomedical engineering electives or which can be taken for graduate school credit. Students in the Honors Program must also complete a two-semester-long research project and present a research report; this is generally accomplished through the BME 3860 and 3861 Undergraduate Research elective courses. Honors students must make a grade point average of 3.0 in these classes and maintain an overall 3.5 GPA to be designated as an honors graduate. The diploma designation is Honors in Biomedical Engineering.

Curriculum Requirements

The B.E. in biomedical engineering requires a minimum of 127 hours, distributed as follows:

1. Mathematics (15 hours): MATH 1300, 1301, 2300, 2400.
2. Basic Science (20 hours): CHEM 1601, 1601L, 1602, 1602L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510, 1510L.
3. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1101 or 1103 or 1104. (CS 1103 is strongly recommended except for students minoring in Computer Science).
4. Electrical Engineering (3 hours): ECE 2112.
5. Biomedical Engineering (38 hours): BME 2100, 2301, 2302, 2400, 2900W, 3000, 3301, 3302, 3400, 3500, 3900W, 4901W, 4950, 4951, 4959.
6. Biomedical Engineering electives (12 hours) comprising:
    1. BME courses numbered 2210 and higher (except BME 2860 and designated sections of 3890–3893) to include up to 6 hours total of BME 3860, 3861.
    2. Any one of the following: CHBE 4500, 4800, 4805, 4810, 4820, 4870; EECE 3214, 4253, 4254; ENVE

2. Any one of the following: CHBE 4500, 4800, 4805, 4810, 4820, 4870; EECE 3214, 4353, 4354; ENVE 4610; ME 2220.

7. Technical electives (9 hours) comprising:
    1. BME, CHBE, CE, CS, ECE, ENGM, ENVE, ME, MSE, NANO, and SC courses except BME 1015, CHBE 3300, CE 2200, CS 1000, 1151, ENGM 2160, 2440, 3100, 3350, 4800, ME 2171, and any School of Engineering courses numbered 2860. Up to 3 hours of independent study courses in the School of Engineering may be taken as technical electives.
    2. ES 3230, 3231, and 3232
    3. Courses numbered 2000 or higher in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution category except MATH 2610, 2810, 2820, and 3000.
    4. BSCI 1511, 1511L; MHS 1500, 1600.
8. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
9. Open electives (6 hours).

Undergraduates in biomedical engineering may apply the pass/fail option only to courses taken as liberal arts core or open electives, subject to school requirements for pass/fail.

Specimen Curriculum for Biomedical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
BSCI 1510, 1510L	Introduction to Biological Sciences with Laboratory	4	–
BME 2100	Biomechanics	–	3
BME 2301, 2302	Systems Physiology I, II	3	3
BME 2400	Quantitative Methods I: Statistical Analysis	–	3
BME 2900W	Biomedical Engineering Laboratory I	–	1
ECE 2112	Circuits I	–	3
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics with Laboratory II	4	–
	Liberal Arts Core	3	–
		17	17
JUNIOR YEAR			
BME 3000	Physiological Transport Phenomena	3	–
BME 3301, 3302	Biomedical Instrumentation I, II	4	4
BME 3400	Quantitative Methods II: Signals and Modeling	3	–
BME 3500	Biomedical Materials	–	3
BME 3900W	Biomedical Engineering Laboratory II	1	–
	Biomedical Engineering and/or Technical Elective	3	6
	Liberal Arts Core	3	3
		17	16
SENIOR YEAR			
BME 4901W	Biomedical Engineering Laboratory III	1	–
BME 4950, 4951	Design of Biomedical Engineering Systems I, II	2	3
BME 4959	Senior Engineering Design Seminar	1	–
	Biomedical Engineering and/or Technical Elective	6	6
	Liberal Arts Core	3	3
	Open Elective	3	3
		16	15

Double Majors

I. The double major in biomedical engineering and electrical and computer engineering requires a minimum of 130 semester hours. A specimen curriculum for the double major with electrical and computer engineering can be found on the biomedical engineering department's website. The requirements include those numbered 1, 2, and 8 for the B.E. in biomedical engineering and the following:
    a. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1101 or 1104.
    b. Biomedical Engineering Core (32 hours): BME 2100, 2301, 2302, 2400, 2900W, 3000, 3302, 3500, 3900W, 4901W, 4950, 4951, 4959.
    c. Biomedical Engineering Electives (3 hours): BME courses numbered 2210 and higher (except BME 2860, 3301, 3400 and designated sections of 3890–3893).
    d. Electrical Engineering Core (18 hours): EECE 2112, 2112L, 2123, 2123L, 2214, 3235, 3235L; CS 2201 or 2204.
    e. Electrical and Computer Engineering Electives (18 hours) selected as described by item 6 of the Curriculum Requirements in the Electrical and Computer Engineering section of the catalog, but totaling at least 18 hours. The courses must include:
        - at least 9 hours in one and at least 6 hours in another of the Areas of Concentration listed under Electrical and Computer Engineering in the Undergraduate Catalog. BME 3302 may be included toward satisfying the Area of Concentration requirement but cannot be counted as an Electrical and Computer Engineering elective.
        - at least one Design Domain Expertise course as designated in the catalog.

II. The double major in biomedical and chemical engineering requires a minimum of 131 hours and is described in the chemical engineering section of the catalog under its curriculum requirements.

Blair School of Music Academic Regulations

Honor System

All academic work at Vanderbilt is done under the Honor System (see the chapter on Life at Vanderbilt.)

Faculty Advisers

All entering students are assigned academic advisers who assist in the planning of programs and course schedules. Students are required to meet with their advisers prior to registration for each semester.

Class Attendance

Students are expected to attend all sessions of each class in which they are enrolled. Attendance is usually a factor in determining the final grade in a course. A student who fails to abide by the attendance policy set by the course instructor is subject to removal from the course. The last day before and the first day after official holidays are considered to be the same as any other day on which classes are scheduled. Assignments are made for classes scheduled on these days, and tests may be given in them. Students should take this fact into account in making travel plans.

Classroom Recording Policy

The use of technologies for audio and video recording of lectures and other classroom activities is allowed only with the express permission of the instructor. In cases where recordings are allowed, such content is restricted to personal use only, unless permission is expressly granted in writing by the instructor and by other classroom participants, including other students. Personal use is defined as use by an individual student for the purpose of studying or completing course assignments. When students have permission for personal use of recordings, they must still obtain written permission from the instructor to share recordings with others.

For students registered with Student Access Services and who have been approved for audio and/or video recording of lectures and other classroom activities as a reasonable accommodation, applicable federal law requires instructors to permit those recordings. Such recordings are also limited to personal use, except with permission of the instructor and other students in the class.

Credit Hour Definition

Credit hours are semester hours; e.g., a three-hour course carries credit of three semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements which exceed this definition. Certain courses (e.g., dissertation research, ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester will be included in the course description.

Course Load

Tuition is charged on the basis of a normal course load of 12 to 18 semester hours. Course loads outside the norm, which must be recommended by the student’s adviser and approved by the associate dean, are charged at an hourly tuition rate. Students who enroll in fewer than 12 hours are placed on probation, unless their underload is necessary because of outside employment or illness. The maximum course load for the summer session is 12 hours (6 hours for a summer half-session). A student must be enrolled in a minimum of 12 hours to be classified as a full-time student.

Advanced Placement

Advanced Placement with Credit. Advanced placement with credit is granted in a number of areas (see the

chapter on Admission).

Advanced Placement without Credit. Students may be admitted to advanced music courses on the basis of placement tests at Blair, but no credit is awarded for music courses exempted.

Transfer Credit

Transfer courses are often taken as free electives, but they may also earn liberal arts core credit. They may not fulfill the music core requirements, count as part of the last 30 hours of residence, serve as repeat credit, or be taken on a Pass/Fail basis. Work transferred from another institution will not carry with it a grade point average. No course in which a grade below C– was received will be credited toward the B.Mus. or B.Mus.Arts. It is the student's responsibility to provide all of the information required by the Office of the University Registrar to assess the program for which transfer of credit is requested. Work presented for transfer must be from a regionally accredited college or university. Information on the evaluation process and policies is available at registrar.vanderbilt.edu/transfer-credit.

Summer studies. Students enrolled at Blair may receive transfer credit for summer courses taken at another regionally accredited two-year or four-year college or university. This may include work at festivals or camps, if offered through a regionally accredited institution. To qualify for summer credit, a student must be in good standing, consult the Office of Academic Services, and submit courses for evaluation through the Transfer Credit portal in YES. A detailed course syllabus is required in order for a course to be evaluated. Deadline for pre-approval is April 1.

Semester work at another institution. Students wanting to receive transfer credit for a semester of work at another regionally accredited institution must receive approval in advance from the associate dean. To qualify for such credit, the student must be in good standing and must present a plan that makes clear the educational rationale for such work, the ways in which it supplements the Vanderbilt curriculum, and the equivalence of standards to those at Vanderbilt. Approval of the overall plan must be followed by approval of specific courses by the associate dean and submission of courses through the transfer credit evaluation process in YES. A detailed course syllabus is required in order for a course to be evaluated. Students enrolled full time (i.e., carrying at least 12 credit hours) during a regular (fall or spring) semester are assumed to be engaged in full-time study at Vanderbilt. Such students are not permitted to take additional course work elsewhere, for transfer credit, during the semester. This includes online courses as well as courses offered by nearby institutions.

Transfer Students

Transfer applicants must comply with university standards (see the chapter on Admissions). The required audition is of major importance in the evaluation of any application. Composition applicants must submit a composition portfolio and interview with a member of the composition faculty.

Transfer students must submit catalog copy and course syllabi from the previous institution(s). A level of performance study is assigned based on the entrance audition. Credit for courses is subject to evaluation. Music courses may require an examination to verify placement and/or credit at Vanderbilt, and credit for non-music courses must be approved through the YES Transfer Credit portal. Transfer students must complete at least half the credit required for the degree, or 63 hours, at the Blair School. See also, *Transfer courses.*

Intra-university transfer. Students intending to transfer within the university should meet with the head of academic advising and file appropriate paperwork. For students transferring out of the B.Mus. or B.Mus.Arts program, music fees are covered through the end of the final term as a B.Mus. or B.Mus.Arts student. All students are expected to maintain a minimum of 3 credit hours within their home school until transfer is approved. First-year students are ineligible for transfer status until the end of their second semester. Students who transferred to Vanderbilt University from another institution are eligible for intra-university transfer after having completed one semester in residence and having achieved sophomore standing. See also, the chapter on Admissions.

Study Abroad

Five Vanderbilt study abroad programs are coordinated with the degree programs in music: the IES programs in Milan, Italy; Vienna, Austria; and in Amsterdam, The Netherlands; the DIS program at the Royal Danish Academy of Music in Copenhagen, Denmark; and the IFSA/Butler program at the University of Sydney and Sydney Conservatorium of Music in Sydney, Australia. These programs include provisions for lesson and ensemble credits, contingent upon audition and admission to the program. These will count towards the Blair music core and are covered at least in part by regular tuition and fees, although students are responsible for any instrument rental fees they accrue. All programs also allow for a range of liberal arts and elective credits. Further information can be obtained from the Vanderbilt Global Education Office, Suite 103, Student Life Center, or vanderbilt.edu/geo, and from Blair's associate dean.

Blair students may also elect any of the Vanderbilt-approved study abroad programs; see descriptions under "Study Abroad" in the front chapters of the catalog. Blair students in these programs have typically enrolled in music electives, courses in the liberal arts core, and course work toward minors and second majors. Students in these programs typically arrange alternative performance or composition instruction, and those fees are usually not covered by tuition. It should be noted that if a program has been approved by Vanderbilt, students must enroll in the program via the Global Education Office. In no case, after matriculating at Vanderbilt, may a student apply to participate in a program for transfer credit through a different university, or through an external agency, and then seek to transfer that credit into Vanderbilt. Any student studying abroad must register with Vanderbilt's global travel office.

Registration

Registration is available to entering first-year students in June. Continuing students register on dates specified each semester in the University Calendar and as assigned in "YES" (Your Enrollment Services, yes.vanderbilt.edu). Conferences with faculty advisers are required before students may register. Detailed information on registration is available on the University Registrar website, registrar.vanderbilt.edu/registration/registration-info.php. Prior to registration, students should refer to the sample curriculum plans in the *Blair Student Handbook*.

Records and the degree audit should be checked regarding progress toward completing the following:

1. Music core
2. Liberal arts core
3. Additional major area requirements

A student whose registration choices are denied or altered (full or cancelled class, lack of prerequisite courses, etc.) may select alternate courses during the Open Enrollment registration period.

Change of Course

Course changes may be made during the Open Enrollment period or the official Change Period (Drop/Add) as published in the University Calendar. All changes need the adviser's approval. A course dropped during the Change Period does not show on a transcript.

A course may be dropped or changed from P/F to graded status prior to the deadline for withdrawal published in the University Calendar. The approval of the adviser and associate dean is required (see Grading System regarding withdrawal grades). Regularly enrolled students must maintain a minimum course load of 12 hours.

Grading System

A: excellent

B: good

C: satisfactory

D: minimum pass work

F: failure

Under certain circumstances the following grades may be awarded (see explanations below):

Pass: D– or above

W: withdrawal

M: missed final examination (prior approval needed; see below)

I: incomplete in some requirement other than final examination (see below)

Plus and minus modifiers may be associated with letter grades *A* through *D* as shown in the table below. Grade point averages are calculated using indicated grade point values.

Defined Grades with Corresponding Grade Points Per Credit Hour

A	= 4.0	C	= 2.0
A-	= 3.7	C-	= 1.7
B+	= 3.3	D+	= 1.3
B	= 3.0	D	= 1.0
B-	= 2.7	D-	= 0.7
C+	= 2.3	F	= 0.0

Grade Point Average

A student's grade point average is obtained by dividing the total grade points earned by the number of hours for which the student registered, excluding courses audited or taken for no credit, those from which the student has withdrawn or for which an incomplete grade *(I or M)* has been authorized, and those with the grade *Pass.*

Pass/Fail Option (Elective)

Students may elect to take a limited number of courses on a Pass/Fail (P/F) basis. To enroll for a course on a Pass/Fail basis, students must have completed at least two semesters at Vanderbilt, must have achieved at least sophomore standing, and must not be on academic probation. The Blair Office of Academic Services can assist with P/F registration.

For B.Mus. and B.Mus.Arts students, the Pass/Fail option is limited to courses taken as free electives. Course work in the area of a minor or second major is governed by the school in which the department or program is housed. No more than one course may be elected on a Pass/Fail basis in any one semester. Only a total of 18 hours towards the 126-hour degree total may be taken on a Pass/Fail basis. Students electing course work on a Pass/Fail basis must be enrolled for 12 graded hours. A graduating senior who has permission to take fewer than 12 hours on a graded basis may take one course on a P/F basis in addition to the courses required for graduation. If the student does not graduate at the end of that semester, the grade *P* is automatically converted to the grade actually earned.

Students may register for grading on a Pass/Fail basis and may change from Pass/Fail to graded status until the deadline date for withdrawing from a course that is published in the Academic Calendar.

Those electing the Pass/Fail option must meet all course requirements (e.g., reports, papers, examinations, attendance, etc.) and are graded in the normal way. Instructors are not informed of the names of students enrolled on a Pass/Fail basis. At the end of the semester, a regular grade is submitted for the student enrolled under the P/F option. Any grade of *D-* or above is converted in the Student Records System to a *P,* while an *F* will be recorded if a student enrolled under this option fails the course. The *P* grade is not counted in the grade point average nor used in the determination of honors. The grade of *F* earned under the Pass/Fail option is included in the calculation of the grade point average.

Deficiency Notices

During the week after mid-semester, the Office of the University Registrar posts deficiency notices for students whose mid-semester grade in any course is a *C–* or below or whose work is incomplete (*I*). (Deficiency notices are found in the Academic Detail in YES at yes.vanderbilt.edu.) Deficiencies are issued as a matter of information and warning. Deficiencies do not show on transcripts, but information is sent to the faculty advisers and may be sent to parents of those students who have submitted a FERPA Release form indicating permission to release academic information to specific individuals ~~are dependents of their parents or who have authorized such reports~~.

A student who receives a deficiency notice is required to meet with the faculty adviser before the deadline for withdrawal at the end of the week. A student with deficiencies in two or more courses or any senior who receives a deficiency notice is also required to meet with the associate dean before the deadline for withdrawal (usually Friday of the week after mid-semester).

W: Withdrawal

A student may withdraw from a course after the official Change Period and prior to the deadline for withdrawal published in the University Calendar, generally Friday of the week after mid-semester. A change of course request form must be signed by the instructor, adviser, and associate dean and filed with the Office of Academic Services. (Students from other schools of the university must file with their home school.) Withdrawals after the published deadline result in an *F.* The grade *W* may be assigned by the associate dean to a student who seeks to withdraw from a course or from school after the deadline for reasons such as extended illness or unusual personal or family problems. No *W* grades are calculated in a student's grade point average.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or the default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available:

Incomplete (I): To be assigned only if the following conditions apply:

1) An extenuating circumstance has emerged after the course withdrawal deadline.

2) The student is up to date on all work prior to the extenuating circumstance.

3) The student successfully completed at least 60% of the assigned work throughout the semester.

4) The student requests the incomplete before the end of classes.

5) The student has been attending a significant majority of the classes.

Missing final exam or final evaluation (M): To be assigned only if the following conditions apply:

1) The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is recorded.

2) The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

No-Credit Courses (NC)

Students who wish to take courses on a no-credit basis must file with the Blair Office of Academic Services before the end of the Change Period. Students must attend class and complete all course work. A grade is recorded on the transcript with the notation "Grading Basis: No Credit Toward Current Degree," indicating that it does not count toward the degree.

No-credit courses count in the computation of a student's academic load and tuition, but not in the computation of the grade point average.

Auditing

Regularly enrolled Blair students who want to audit courses in any of the undergraduate schools of the university must complete the change of course request form and obtain the written consent of the instructor to attend the class but do not register for the course for credit. No permanent record is kept of the audit. Regular students may audit one class each semester.

Repeated Courses

Certain courses, notably performing ensembles and variable credit performance instruction, may be taken more than once for credit. Otherwise, students may repeat any course to replace a grade, with no additional credit hours earned, subject to the following conditions:

- Courses taken at Vanderbilt may not be repeated elsewhere. A grade may not be replaced by a grade of "Pass."
- A grade of *W* or *I* cannot replace a letter grade.
- Only the most recent grade is calculated in the grade point average, but all grades show on the transcript.

Dead Week

The last week of classes, i.e., the last seven calendar days before the final examination period each semester, is designated as dead week. No examinations of any type, including quizzes, portions of final examinations, recitals, or ensemble performances, may be given during this time without the express written permission of the dean and notification of students at least two weeks before dead week. Violations should be reported to the dean.

Examinations

All examinations are conducted under the honor system. Primary and alternate exam schedules, which allow two hours for a final exam in each course, are listed on the University Registrar's website. The instructor may use the alternate schedule in addition to, but not instead of, the primary schedule.

Alternatives to standard in-class final examinations, such as term papers or take-home, self-scheduled, or oral examinations may be given at the instructor's discretion. A take-home exam is distributed at the last regular class meeting and must be completed by the latest time scheduled for the final examination.

Performance examinations are scheduled by area coordinators. Students giving full recitals during the semester may be exempted from performance examinations at the discretion of the instructor. If performance examinations are scheduled on a reading day (the day after classes end, when no course examinations are scheduled), students are also given the choice of a different day for their performance examinations.

A student who misses a final examination may be eligible to receive the grade *M* (see Temporary Grades).

Grade Reports

Grade reports and faculty critiques of performance examinations will be provided to students as soon as possible at the end of each semester. Grades are available online in the Academic Record, which is housed within YES (Your Enrollment Services) at yes.vanderbilt.edu. Occasionally, student academic information may be shared with appropriate faculty committees for purposes of promotion and tenure review.

A grade reported and recorded in the Office of the University Registrar may be changed only upon written request of the instructor, on certification that the original report was in error, with approval of the associate dean.

Academic Standards

For the purposes of class standing, a regular semester is defined as any fall or spring term in which a student is registered for at least 12 hours.

Class Standing

To qualify for sophomore standing, a student must complete a minimum of 24 hours with a grade point average of 1.8 and have completed two regular semesters.

To qualify for junior standing, a student must complete a minimum of 54 hours with a grade point average of 1.9, must complete MUTH 2200 and MUTH 2220, and must have completed four regular semesters.

To qualify for senior standing, a student must complete a minimum of 86 hours with a grade point average of 2.0 and have completed six regular semesters.

Academic Probation

Students are placed on probation if they fail to meet class standing benchmarks, as noted above. Students on probation must qualify for class standing in one additional semester or risk being dropped from the university.

Students are placed on academic probation: if they fail to meet class standing benchmarks; if they complete fewer than 12 hours in a fall or spring semester except in cases involving documented mitigating circumstances (illness, injury, or family emergency); or if their semester grade point averages fall below 1.8 overall or 2.0 in music. In addition, first-year students are placed on academic probation if they do not complete one writing course.

Incomplete grades may adversely affect class standing or grade point averages.

Students on academic probation may not transfer summer study credit, elect to take courses on a Pass/Fail basis, earn credit by departmental examination, or participate in any extracurricular performance activity. They are required to participate in a special academic advising program. Students will be placed on probation no more than twice. Students who are candidates for probation a third time will be dropped from the university.

Sudden Academic Insufficiency

Any student who fails by a wide margin to reach prescribed levels of academic achievement, either at the end of

a semester or at mid-semester, is reviewed by the associate dean's office in conjunction with the academic and studio adviser(s). If the student is not making satisfactory progress towards the degree, the student may be placed on probation or may be advised or required to take a leave of absence or advised to withdraw from the university.

Appeals of such findings should be addressed to the Blair Curriculum Committee.

Scholarship Student Requirements

Students receiving honor scholarships through Blair School of Music must be enrolled full time, taking all assigned music courses, must qualify for class standing, and must maintain each semester minimum grade point averages of 2.0 overall and 2.7 in music. Students receiving the Cornelius Vanderbilt Honor Scholarship must maintain a minimum 3.0 grade point average overall and 3.0 in music each year. Additional requirements may be stipulated in scholarship award letters.

Honor scholarship awards are considered for renewal annually. Student work will be reviewed at the end of spring semester for possible renewal for the following academic year. Temporary grades may adversely affect renewal. A student who falls short of the requirements will normally have the scholarship for one semester of grace, after which, if requirements are still not met, the scholarship will be lost.

Students receiving scholarships or grants as part of their financial aid packages (not honor scholarships) must qualify for class standing in order to be considered for renewal each year. Students receiving federal aid are expected to make satisfactory academic progress as outlined in the chapter on Financial Information.

Graduation Requirements

Candidates for degrees must have completed 126 hours and all curriculum requirements, have passed all prescribed examinations, and be free of indebtedness to the university.

Exceptions to stated degree requirements and procedures must be approved by the Curriculum Committee as the representative body of the faculty in matters pertaining to the curriculum.

The minimum grade point averages required for graduation are 2.0 overall and 2.0 in music. A student taking a second major must earn a 2.0 in that major in order for it to be certified on the transcript.

If requirements for graduation change, students may elect to be bound by requirements published in the *Undergraduate Catalog* in either their entering or their graduating year.

Immersion Vanderbilt

To fulfill the university requirement of Immersion Vanderbilt, a student must participate in an intensive learning experience that takes place in and beyond the classroom and culminates in the creation of a tangible final project. This requirement applies to all students who entered Vanderbilt as first-year students in or after summer 2018, as second-year students in or after summer 2019, or as third-year students in or after summer 2020.

Immersion Vanderbilt is divided into four broad pathways: civic and professional, creative expression, international, and research. The pathway selected by the student may focus on one or more than one of these areas and should provide a structure upon which students can brainstorm, plan, and execute their immersive projects across multiple years.

Most Blair students will take advantage of the senior recital experience or honors thesis in ethnomusicology/musicology to satisfy the requirements of Immersion Vanderbilt. However, students may choose to pursue an Immersion plan outside their home program. Students should consult the Office of Immersion Resources (OIR). Completion of the Immersion Vanderbilt graduation requirement will be shown on the student's degree audit, and the title of the Immersion project will be added to the student's transcript. vanderbilt.edu/immersion

Residence Requirement

A minimum of four semesters and at least 63 credit hours, as well as the last two semesters and the last 30 credit hours, must be spent in residence in the Blair School. Students transferring from other schools of the university must spend the last two semesters and at least the last 30 credit hours in residence in the Blair School. Students who wish to study abroad or study away in their penultimate semester may petition the Blair Curriculum Committee for a waiver of the residence requirement.

Senior Re-examination

A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed would prevent the student’s graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination. The re-examination must be requested through the student’s associate dean’s office, and, if approved, it is given immediately after the close of the last semester of the student’s senior year. A student who passes the re-examination will receive a D- in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course. Note: For engineering students taking engineering courses, the senior re-examination policy applies if a student fails not more than one course in the senior year.

Writing Portfolio

Students in their senior year are required to submit a writing portfolio drawn from academic course work from one or more classes to be evaluated by a faculty committee. Emphasis should be placed on demonstrating an ability to write clearly and effectively and on the student’s ability to form connections across two or more disciplines. Students are required to prepare a one-paragraph narrative explaining how the submitted work demonstrates the required competencies.

Degree Audit Reports

An online degree audit is available on YES to all Blair students, showing total hours earned, degree requirements completed, and those still to be met. Students should examine the audit carefully with their faculty advisers. Problems or suspected errors should be discussed immediately with the Blair Office of Academic Services.

Credit by Departmental Examination

In certain circumstances, students may be awarded course credit (a maximum of 8 hours) by departmental examination. This procedure is distinct from the awarding of credit through the College Board Advanced Placement Tests or the International Baccalaureate. Students apply for credit by examination through the Blair Office of Academic Services.

To earn credit by departmental examination, students must be enrolled for at least 12 hours, be in good standing, be recommended by their advisers, and have the approval of the appropriate department. In addition, students must seek prior approval of their study plan through the associate dean’s office. Students may attempt to earn credit by examination in no more than two courses in one semester, only once in any course in one semester, and no more than twice in the same course.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after learning the results of the examination.

Students enrolled for at least 12 hours are not charged extra tuition for hours earned through credit by examination, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no-credit courses and courses dropped after the change period. Students in this category must pay a $50 fee for the cost of constructing, administering, and grading the examination. Since this cost has already been incurred, students who refuse the credit hours and grade are charged the $50 fee nevertheless. Full-time students with a tuition load exceeding 18 hours and students taking fewer than 12 hours pay tuition at the regular rate, per credit hour, with no additional fee.

Independent Study

Students must obtain permission to enroll in Independent Study from the instructor of their choice prior to registration. Independent Study authorization forms are available at blair.vanderbilt.edu/academics. The instructor's signature on the authorization form indicates a willingness to supervise the Independent Study project. A contract or study plan, approved by the instructor in consultation with the appropriate department chair and the associate dean, must be submitted to the Blair Office of Academic Services by the tenth calendar day after classes begin. If no plan is submitted, the student will be dropped from Independent Study. An Independent Study project should result in a substantial written report, paper, or lecture/recital. The report, recording, or some physical manifestation of the project should be retained by the instructor. Independent Study projects proposed by students for cross-school registration should be approved through the mechanisms of both schools. Consult associate deans from both schools for guidance.

A student may register for a maximum of 3 hours in Independent Study in a semester. A student may count a total of 6 hours in Independent Study toward the degree. A faculty member may supervise no more than four students per semester in Independent Study projects.

Independent Study cannot substitute for courses which are part of the curriculum.

Internships

The Career Center assists students interested in internship opportunities in the music industry and elsewhere; there are opportunities in many states of the U.S. and also abroad, both during the academic year and in the summer. A student serving as an intern may register for MENT 3880, 3881, or 3882 as a corollary if credit is desired. Students with summer internships that require an academic component must register for credit (vanderbilt.edu/career/career-exploration/internships/summer-internship-subsidy/). A maximum of 6 hours of internship credit may be counted toward the degree. Students are responsible for finding a faculty sponsor; a written study plan must be approved by the faculty sponsor and the Blair associate dean no later than the tenth day of classes. Internship paperwork is available on the Blair School website at blair.vanderbilt.edu/academics.

Performance Instruction: B.Mus. and B.Mus.Arts Degrees

Fees. Performance instruction fees are waived for B.Mus. and B.Mus.Arts students. A one-time music technology fee is charged to each first-year student.

Elective credit. B.Mus. and B.Mus.Arts students taking a second instrument normally enroll in 1100-level performance instruction for 1 or 2 hours elective credit. Consent of the instructor is required. B.Mus. and B.Mus.Arts students who have declared a minor instrument also register for performance instruction at the 1100 level; consent of the instructor and notification of the Blair Office of Academic Services are required.

Composition Majors. Students register for performance instruction at the 1100 level. A minimum of 6 semesters of study totaling 6 credit hours is required.

Integrated Studies Majors, Integrated Studies/Teacher Education Majors, Jazz Studies Majors, and B.Mus.Arts

students. First-year students and sophomores register for 2100-level performance instruction in their primary area. Juniors and seniors register for 4100-level performance instruction in their primary area. A minimum of 8 semesters totaling 16 credit hours required; performance instruction required every semester in residence.

Performance Majors. First-year students and sophomores register for 2200-level performance instruction in their primary area. Juniors and seniors register for 4200-level instruction in their primary area. A minimum of 8 semesters totaling 32 hours (instrumental performance majors) or 28 hours (vocal performance majors) required; performance instruction required every semester in residence.

Upper Divisional Hearing (Performance Majors Only)

Requirements for performance majors include an upper divisional hearing in the sophomore year to determine continuance in the performance degree program and permit subsequent enrollment in upper division study at the 4200 level. Students are required to perform a program of twenty to thirty minutes for a faculty committee convened by the studio instructor or by the department chair. The committee will normally consist of the student's studio teacher and at least two additional members of the department. Memorization is required as appropriate, and where called for, collaboration with piano is expected ~~where called for~~.

The student must consult with the studio instructor regarding appropriate repertoire. Instrumental selections must be chosen from the solo repertoire and should represent diverse historical periods. Percussionists must perform on keyboard percussion, timpani, and snare drum and/or multiple percussion. String repertoire must include solo Bach. Pianists must perform a 30-minute memorized program of solo piano literature representing at least three style periods. Vocal repertoire must include a minimum of five songs of contrasting periods and styles, using three languages (Italian, English, and either French or German).

Failure to pass this hearing demonstrates a lack of the requisite skills to graduate in performance at the Blair School, necessitating transfer to another degree program. A student may petition the faculty once for a second hearing, with entirely different repertoire, to take place before the end of the first semester of the junior year.

Solo Recitals Pre-Recital Hearing

All students (excepting composition) giving required recitals and any student who wishes to give a recital in the Blair building must pass a hearing, held at least three weeks before the recital. After establishing a recital date, the student, with guidance from the studio instructor, will assemble a recital hearing committee, consisting of two additional faculty members, one of whom must be from outside the student's performing area. For integrated studies/teacher education students, the committee will normally consist of the studio instructor, a teacher education faculty member, and at least one additional faculty member. For non-required, non-credit recitals, the hearing committee may be from within the department. For any recital involving a student's second performing medium, the student must seek approval from the studio instructor and area coordinator of the secondary and primary performing areas; in addition, a full-time faculty member from the secondary performing area must be part of the hearing committee. The student must notify the recital hearing committee, in writing, of the hearing date, recital date, time, and place. Senior composition recitals are screened in advance at the department level.

For a required junior or senior recital, the repertoire will normally encompass three major style periods, as appropriate to the medium; at least one work in a contemporary idiom will be included in either the junior or senior recital. For teacher education students, a conducting component must be included on the required senior recital. For jazz studies students, an original composition or arrangement must be included on the required senior recital. A required senior recital must also include written or spoken program notes, visual media, or other audience engagement component, with the approval of the studio instructor. The hearing committee should hear all of the recital repertoire. Grading of the hearing is on a Pass/Fail basis, with written faculty comments. If a student fails the hearing, another must be scheduled. Only two recital hearings in one semester are permitted.

For students also choosing the senior recital to fulfill Immersion Vanderbilt, the recital program and audience engagement component should be a deeper, more intensive project that integrates classroom knowledge with

experience. The student will work with the project's primary Immersion adviser (usually the studio teacher) to develop a plan relevant to the student's recital. While there are no specific requirements, examples may be found in the Blair Student Handbook. The student's Immersion adviser will ultimately decide if the plan fulfills the Immersion Vanderbilt project.

Recital and Recital Committee

For recitals given for credit, the recital committee is the same as the hearing committee whenever possible. The final grade is a composite of those of at least two committee members, including the studio instructor, with the studio instructor's grade valued at two thirds of the total. Copies of committee member's grades are kept by the instructor. Recitals not given for credit are not graded; they involve a hearing committee but not a recital committee.

Extracurricular Performance

Students must be in good standing and have the consent of their private instructors in order to participate in any extracurricular performance activities, including in-school collaboration, that are not required by a student's degree program or honor scholarship.

Recital Attendance

Each semester in residence, students (except graduating seniors in their penultimate or final semester) are required to register for MUSO 1000 and attend weekly student recitals/convocations and a minimum of six Blair faculty or professional concerts or their community equivalents as described on the syllabus. Students must fulfill both aspects of the requirement to pass each semester. The course receives zero credit hours but is graded on a Pass/Fail basis and listed on students' transcripts. A temporary final grade will not be granted except in the case of documented medical emergency.

Students must register their attendance at each recital. Two absences from Friday afternoon recitals are permitted each semester. Under extraordinary circumstances, make-up assignments can be obtained from the recital attendance coordinator with the permission of the associate dean. Students must plan and keep up with their concert attendance. Except for weekly student recitals, performances in which students are participants do not fulfill the attendance requirement for the performer. Deadline for completion of all work is listed on the course syllabus for MUSO 1000. The first failure would result in the loss of the senior penultimate or final semester exemption. Additional failure(s) would require students to enroll for additional semester(s) until the seven required semesters are passed.

Change of Address

Any change of address should be submitted to the Office of the University Registrar at yes.vanderbilt.edu. The university will consider notices or other information delivered if mailed to the address currently on file.

Leave of Absence

A student in good standing may, with the approval of the associate dean, take leave of absence for one or two semesters. Application forms, available from the Blair Office of Academic Services, must be submitted by 1 December for spring semester leave or by 1 May for fall semester.

Students planning to study elsewhere while on leave (elective courses) must have prior approval if credits are to be transferable. Upon the student's return, a performance examination during the first two weeks of the semester may be needed to determine the student's standing in the major performance area.

Registration notifications are emailed to students on leave. A student failing to register at the conclusion of the stated leave will be withdrawn from the university and must apply for readmission.

Students who have been on leave of absence and not enrolled for three or more semesters or who leave the university while on academic probation must re-audition and achieve the approval of the associate dean prior to readmission.

Withdrawal from the University

Students proposing to withdraw from the university during any semester must report to the Blair associate dean to initiate proper clearance procedures. Students are graded on the same basis as if withdrawing from a course.

Students who withdraw before the end of the eighth week of classes receive a partial refund of tuition (see the chapter on Financial Information). Students intending to withdraw from the university for the following semester should notify the Blair Office of Academic Services by 1 December for spring semester or by 1 May for the fall semester.

Students who have withdrawn from the university without filing a Leave of Absence form must apply for readmission if they wish to return.

Blair School of Music Administration and Faculty

LORENZO CANDELARIA, Ph.D., Dean, Blair School of Music

MELISSA K. ROSE, D.M.A., Senior Associate Dean for Academic Affairs

SETH SOLOWAY , M.F.A., Associate Dean for Presenting and External Relations

MICHAEL SLAYTON, D.M.A., Associate Dean for Faculty Affairs

VIRGINIA PAYNE, B.A., Associate Dean for Blair Development and Alumni Relations

MOLLY JEWELL, B.M., Director, Admissions

HEIDI BASGALL FAVORITE, Chief of Staff

KATHRYN DUDLEY, B.F.A., Chief Business Officer

RACHEL HOBBS, B.A., Office of Academic Services

JOHN SEVIER, B.A., Director of Technical Operations

JARED WONDERLY, M.S.A., Facilities Manager

Music Library

HOLLING SMITH-BORNE, M.L.S., Director

SARA J. MANUS, M.L.S., Music Librarian for Public Services

JACOB SCHAUB, M.M., M.L.S., Music Librarian/Cataloging

MICHAEL JONES, B.A., Circulation Coordinator

ROBERT RICH, B.M., M.M., Reference Assistant

Area Coordinators

JEREMY WILSON, Brass and Percussion

CONNIE HEARD, Strings, Guitar, and Harp

MOLLY BARTH, Woodwinds

TYLER NELSON, Voice

KAREN ANN KRIEGER and HEATHER CONNER, Keyboard

THOMAS VERRIER, Ensembles

JOY CALICO, Musicology/Ethnomusicology

MICHAEL SLAYTON, Composition/Theory

Faculty Coordinators and Program Directors

MARY BIDDLECOMBE, Director, Blair Academy

TUCKER BIDDLECOMBE, Music Education Program

JOSHUA MCGUIRE, Aural Skills, Musicians' Wellness, Music Technology

RYAN MIDDAGH, Director, Jazz Studies

BRIAN UTLEY, Chamber Music, Immersion

RUSSELL PLATT and JAMA REAGAN, Music Minors

RUSSELL PLATT, Music as a Second Major

Committees

For a list of committees, please visit https://blair.vanderbilt.edu/academics/faculty-tools.php.

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

Blair School of Music Courses

COMP Composition
JAZZ Jazz Studies
MCON Conducting
MENT Arts Advocacy, Career Development, and Entrepreneurship
MPED Pedagogy
MREP Orchestral Repertoire and Instrument Literature
MUED Music Education
MUKH Keyboard Harmony
MUSC Musicianship
MUSE Ensembles
MUSL Musicology/Ethnomusicology
MUSO Other Music Courses
MUTH Music Theory
MWEL Musicians' Wellness

Group Performance, Performance Classes and Individual Performance Instruction
BRQ Baroque
BNJO Banjo
BASS Bass
BSSN Bassoon
CLLO Cello
CLAR Clarinet
DRUM Drumset
EUPH Euphonium
FDDL Fiddle
FLUT Flute
GTR Guitar
HARP Harp
HRPS Harpsichord
HORN Horn
MNDL Mandolin
OBOE Oboe
ORGN Organ
PERC Percussion
PIAN Piano
SAX Saxophone
STPN Steel Pan
TROM Trombone
TRPT Trumpet
TUBA Tuba
VLA Viola
VLN Violin
VOIC Voice

Business Studies

DIRECTOR Patrick R. Leddin

DIRECTOR OF UNDERGRADUATE STUDIES Joseph J. Rando

PROFESSOR OF THE PRACTICE Gary R. Kimball

ASSOCIATE PROFESSORS OF THE PRACTICE Willis J. Hulings, Patrick R. Leddin, Joseph J. Rando, Garnett H. Slatton

LECTURERS Marcy Binkley, Jonathan Dyke, Gary McClure, Bob Spieth, Leonora Williamson

COURSES OFFERED: BUS, BUSA

The College of Arts and Science offers select courses under the Business Studies Program to help students understand marketing, accounting, entrepreneurship, management, corporate strategy, negotiation, and analytics. These elective courses are offered by the Business Studies program. The program is directed by Professor Patrick R. Leddin, 215 Calhoun Hall, (615)-322-4021.

Calendar 2023/2024

Dates are subject to change.

FALL SEMESTER 2023

Classes begin. Wednesday 23 August

Registration ends. Tuesday 5 September.

Deadline to pay fall charges. Thursday 31 August.

Thanksgiving holidays. Saturday 18 November - Sunday 26 November

Classes end. Thursday 7 December

Reading days and examinations. Friday 8 December - Saturday 16 December

Fall semester ends. Saturday 16 December

SPRING SEMESTER 2024

Deadline to pay spring charges. Sunday 31 December 2022

Classes begin. Monday 8 January

Registration ends. Friday 19 January

Spring holidays. Saturday 9 March - Sunday 17 March

Classes end. Monday 22 April

Reading days and examinations. Tuesday 23 April - Thursday 2 May

Commencement. Friday 10 May

MAYMESTER 2024

Classes begin. Monday 6 May

Classes end; examinations. Friday 31 May

SUMMER SESSION 2024

Classes begin. Tuesday 4 June

Examinations for first-half courses. Friday 5 July

Second-half courses begin. Tuesday 9 July

Examinations for second-half and full-term summer courses. Friday 9 August

Chemical Engineering

CHAIR Paul E. Laibinis

DIRECTOR OF GRADUATE PROGRAM Jamey D. Young
DIRECTOR OF GRADUATE RECRUITING G. Kane Jennings

DIRECTOR OF UNDERGRADUATE STUDIES Ethan S. Lippmann

PROFESSORS EMERITI Peter T. Cummings, Thomas R. Harris, M. Douglas LeVan, K. Arthur Overholser, Peter N. Pintauro, Robert J. Roselli, John A. Roth, Robert D. Tanner

PROFESSORS Craig L. Duvall, Todd D. Giorgio, Scott A. Guelcher, G. Kane Jennings, David S. Kosson, Paul E. Laibinis, Matthew J. Lang, Sandra J. Rosenthal, Krishnendu Roy, Florence Sanchez, Jamey D. Young

RESEARCH PROFESSOR Peter T. Cummings, Clare M. McCabe, Peter N. Pinaturo

PROFESSOR OF THE PRACTICE Russell F. Dunn

ASSOCIATE PROFESSOR EMERITUS Kenneth A. Debelak

ASSOCIATE PROFESSORS Ivelin Georgiev, Shihong Lin, Ethan S. Lippman, Bridget R. Rogers, John T. Wilson, Marija Zanic

ASSISTANT PROFESSORS Piran Kidambi, Marjan Rafat, Carlos A. Silvera Batista, Zhongyue Yang

ASSISTANT PROFESSOR OF THE PRACTICE David C. Florian, Julianne Vernon

RESEARCH ASSISTANT PROFESSORS Karan Arora, Vijay Bharti, Peifu Chang, Clinton Hasenour, Hyosung Kim, Bo Li, Hongiun Liu, Bo Wang

ADJUNCT ASSISTANT PROFESSOR Bryan R. Beyer

COURSES OFFERED: CHBE

Chemical engineers play key roles in the development and production of commodity chemicals, pharmaceuticals, and bioengineered materials, high strength composites and specialty polymers, semiconductors and microelectronic devices, and a wide range of ultrapure fine chemicals. Indeed, chemical engineering is essential for the operation of contemporary society. The solutions to many of the problems that we face today—e.g., energy, the environment, development of high-performance materials—will involve chemical engineers.

The undergraduate program in chemical engineering prepares students to contribute to the solution of these and similar problems. Graduates find meaningful careers in industry, in government laboratories, and as consultants. Some continue their education through graduate studies in chemical engineering, business, law, or medicine.

Mission. The mission of the Department of Chemical and Biomolecular Engineering is to educate those who will advance the knowledge base in chemical engineering, become practicing chemical engineers, and be leaders in the chemical and process industries, academia, and government; to conduct both basic and applied research in chemical engineering and related interdisciplinary areas; and to provide service to the chemical engineering profession, the School of Engineering, Vanderbilt University, the country, and the world.

Degree Programs. The Department of Chemical and Biomolecular Engineering offers the B.E. in chemical engineering and graduate study leading to the M.Eng., M.S., and Ph.D.

Undergraduate chemical engineering students acquire a solid background in mathematics, chemistry, biology, and physics. The chemical and biomolecular engineering program has as its basis courses in transport phenomena, thermodynamics, separations, and kinetics. Other courses deal with the principles and techniques of chemical engineering analysis and design, along with economic analysis, process control, chemical process safety, and engineering ethics. Laboratory courses offer the student an opportunity to make fundamental measurements of momentum, heat, and mass transport and to gain hands-on experience with bench scale and small-scale pilot-plant apparatus, which can be computer controlled. Report writing is a principal focus in the laboratory courses. Many students have the opportunity to carry out individual research projects.

A specimen curriculum for a chemical engineering major follows. This standard program includes a number of electives. Students, in consultation with their faculty advisers, may choose elective courses that maintain program breadth or may pursue a minor or focus area with their chemical engineering major. Specimen curricula with emphases in specific areas are available on the department website. Double majors may be arranged in consultation with a faculty adviser.

Students are recommended to take the Fundamentals of Engineering Examination (FE) in their senior year. This is the first step in obtaining a license as a professional engineer. The following courses are recommended for preparation for the FE: ECE 2112, CE 2200, and ME 2190.

Undergraduate Honors Program. The Honors Program in chemical engineering provides an opportunity for selected students to develop individually through independent study and research. General requirements are described in the Special Programs chapter. The chemical and biomolecular engineering department requires a minimum overall GPA of 3.5. Acceptance to the program is made by petition to the faculty during the junior year. Transfer students may be considered for admission after completing one semester at Vanderbilt. Candidates for honors choose their technical courses with the consent of a faculty honors adviser. Requirements include at least 6 hours of CHBE courses numbered 5000 or above, plus 6 hours of CHBE 3860 and 3861 taken in the junior and/or senior year under the direction of a faculty honors adviser. A formal written research report is submitted each semester CHBE 3860 or 3861 is taken with a final report and presentation given in the spring semester of the senior year to the CHBE faculty and students. The diploma designation is Honors in Chemical Engineering.

Facilities. The chemical and biomolecular engineering department is located in Olin Hall of Engineering. Undergraduate instructional laboratories are equipped for study of transport phenomena, unit operations, kinetics, and process control. Current research areas for which facilities are available include molecular modeling; colloid and surface science; biochemical engineering and biotechnology; materials processing and characterization; energy and the environment.

Curriculum Requirements

The B.E. in chemical engineering requires a minimum of 125 hours, distributed as follows:

1. Mathematics (14 hours): MATH 1300, 1301, 2300, 2420.
2. Basic Science (27 hours): CHEM 1601, 1601L, 1602, 1602L, 2221, 2221L, 2222, 2222L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510 or CHBE 2150.
3. Engineering Fundamentals (6 hours): ES 1401, 1402, 1403; CS 1100 or 1101 or 1103 or 1104 (CS 1100 or 1103 preferred).
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Chemical and Biomolecular Engineering (39 hours): CHBE 2100, 2200, 2250, 2900W, 3200, 3250, 3300, 3350, 3600, 3900W, 4900W, 4950W, 4951W, 4959.
6. Chemical and Biomolecular Engineering electives: 6 hours selected from CHBE courses numbered 4000 or above and ENVE 4625.
7. Statistics (3 hours): One of DS 2100, BME 2400, CE 3300, or MATH 2810.
8. Technical electives (6 hours). To be selected from: a) courses numbered 2000 or above in BME, CHBE, CE, CS, DF, ECE, ENVE, ME, MSE, NANO, and SC, except ME 2220 and any School of Engineering course numbered 2860; b) courses numbered 1500 or above in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution category; and c) ENGM 3000, 3010, 3300, 3650, 3700, 4500. At least 3 hours must be selected from BSCI 2201, 2520; CHEM 3300, 3310; ENVE 4600

or CHBE courses numbered 4000 and above.

9. Open electives (6 hours).

Undergraduates in chemical engineering, including double majors with chemical engineering, may apply the pass/fail option only to courses taken as open electives, subject to the school requirements for pass/fail. No more than 6 total hours of CHBE 3860 and 3861 may be applied toward degree requirements.

Double Majors

I. The double major in chemical engineering and biomedical engineering requires a minimum of 131 semester hours distributed as follows:
   a. Mathematics (15 hours): MATH 1300, 1301, 2300, 2400.
   b. Engineering Fundamentals (6 hours): ES 1401, 1403, 1403; CS 1101 or 1103 or 1104.
   c. Basic Science (28 hours): CHEM 1601, 1601L, 1602, 1602L, 2221, 2221L, 2222, 2222L; PHYS 1601, 1601L, 1602, 1602L; BSCI 1510, 1510L.
   d. Chemical and Biomolecular Engineering (29 hours): CHBE 2100, 2200, 3200, 3250, 3300, 3350, 4900W, 4950W, 4951W, 4959.
   e. Biomedical Engineering (29 hours): BME 2100, 2301, 2302, 2400, 2900W, 3301, 3302, 3400, 3500, 3900W, 4959.
   f. Electrical Engineering (3 hours): ECE 2112.
   g. CHBE/BME Elective: 3 hours selected from CHBE 4500, 4800, 4805, 4810, 4820 and BME courses numbered 4000 and above except BME 6110. BME 3890 and CHBE 3890 may be substituted upon approval of the Directors of Undergraduate Studies for BME and CHBE.
   h. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.

II. The double major in chemical engineering and chemistry requires a minimum of 130 semester hours. The requirements include those numbered 1, 2, 3, 4, and 6 for the B.E. in chemical engineering and the following:
   a. Chemical and Biomolecular Engineering (36 hours): CHBE 2100, 2200, 2250, 2900W, 3200, 3250, 3300, 3350, 3600, 4900W, 4950W, 4951W, 4959.
   b. Science (23 hours): CHEM 2100, 2100L, 3010, 3315; CHEM 3300 or 3310; either CHEM 4965 and 4966 or 6 hours selected from CHEM 3980, 4980, and 4999; BSCI 1510 or CHBE 2150; BSCI 2520.
   c. Engineering Elective: 3 hours selected from courses numbered 2000-3800 or 3890 and above in BME, CHBE, CE, CS, EECE, ENVE, and ME, except courses numbered 2860.

Specimen Curriculum for Chemical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
CHEM 2221, 2222	Organic Chemistry	3	3
CHEM 2221L, 2222L	Organic Chemistry Laboratory	1	1
MATH 2300	Multivariable Calculus	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CHBE 2100	Chemical Process Principles	3	–
CHBE 2200	Chemical Engineering Thermodynamics	–	3
CHBE 2250	Modeling and Simulation in Chemical Engineering	–	3

CHBE 2900W	Technical Communications for Chemical Engineers	–	1
	Liberal Arts Core	3	3
		17	17
JUNIOR YEAR			
CHBE 2150	Molecular and Cell Biology for Engineers	3	–
CHBE 3200	Phase Equilibria and Stage-Based Separations	3	–
CHBE 3250	Chemical Reaction Engineering	–	3
CHBE 3300	Fluid Mechanics and Heat Transfer	3	–
CHBE 3350	Mass Transfer and Rate-Based Separations	–	3
CHBE 3900W	Chemical Engineering Laboratory I	–	3
	Chemical and Biomolecular Engineering Elective	–	3
	Statistics Elective: DS 2100, BME 2400, CE 3300, or MATH 2810	3	–
	Liberal Arts Core	3	3
		15	15
SENIOR YEAR			
CHBE 3600	Chemical Process Control	3	–
CHBE 4900W	Chemical Engineering Laboratory II	3	–
CHBE 4950W	Chemical Engineering Process and Product Design	4	–
CHBE 4951W	Chemical Engineering Design Projects	–	3
CHBE 4959	Professional Practice of Safety in Chemical Engineering Design	1	–
	Chemical and Biomolecular Engineering Elective	–	3
	Liberal Arts Core	–	3
	Technical Elective*	3	3
	Open Elective	3	3
		17	15

*At least 3 hours must be selected from BSCI 2201, 2520; CHEM 3300, 3310; ENVE 4600 or CHBE courses numbered 4000 and above.

Specimen curricula for the double majors with biomedical engineering and with chemistry can be found on the department's website.

Chemistry

CHAIR John A. McLean

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DIRECTOR OF GRADUATE STUDIES David E. Cliffel

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SENIOR LECTURERS Hemant Badgandi, Katherine Clements, Aaron Daniel, Alissa Hare, Craig G. Tainter, Susan Verberne-Sutton

COURSES OFFERED: CHEM

The Department of Chemistry seeks to provide a sound education in the fundamentals of modern chemistry as well as exposure to cutting-edge research and contemporary instrumentation in the field. This is accomplished by providing students with a solid background in the disciplines of organic, analytical, inorganic, biological, and physical chemistry. The core courses in these areas, which are supported by a variety of practical experimental experiences in the laboratory, provide students with the skills needed to think critically about chemistry. After these core courses, students delve deeper into an area of their choice. Recognizing the importance of research, which integrates and makes sense of our collective body of knowledge, we encourage students to participate in undergraduate research. The chemistry major at Vanderbilt University meets the guidelines for the American Chemical Society approved program of study in chemistry.

Program of Concentration in Chemistry

The chemistry program is organized into four parts. The first part is a general chemistry course sequence (CHEM 1601–1602 and 1601L–1602L or AP credit) to serve as an entry point into the major. The second part consists of foundation courses in the five major disciplines of chemistry: analytical (2100), biochemistry (BSCI 2520), inorganic (3010), organic (2221–2222 or 2211–2212), and physical (3300 or 3310). The third part of the chemistry major consists of completing 8 credit hours of laboratory past 1601L–1602L. Four credit hours are from laboratory courses (2221L–2222L, 2100L, and 3315) associated with foundation courses. There are also 6 credit hours of a capstone laboratory (4965–4966) designed to provide advanced laboratory experience. The fourth part of the major consists of completing a minimum of 6 credit hours of in-depth chemistry courses. These in-depth courses build upon the content of foundation courses or integrate concepts from these foundational disciplines.

Required Non-chemistry Courses

One year of calculus (MATH 1300-1301 is preferred)

PHYS: Both 1501–1502 and 1501L–1502L, or both 1601–1602 and 1601L–1602L, or 1901–1902

Required Chemistry Courses	Cr. Hrs. toward major
Chem 1601–1602 & 1601L–1602L or AP credit	0
Chem 2221–2222 (or 2211–2212) & 2221L–2222L	8
Chem 2100 & 2100L	4
Chem 3300 or 3310	3
Chem 3315	1
BSCI 2520	3
Chem 3010	3
*Two in-depth chemistry courses	6
Chem 4965–4966	6
Minimum Credit Hours for Chemistry Major	34

* In-depth chemistry courses include all 2000-level chemistry and higher courses not explicitly required, except for CHEM 3600 and 3980–4980–4999. Other in-depth chemistry courses are Chemical and Biomolecular Engineering 3200 and 3250, and Earth and Environmental Sciences 4600, and any 5000-level chemistry lecture courses. (Qualified seniors interested in graduate-level courses must obtain approval from the course instructor, their adviser, and the director of graduate studies in chemistry. Further details are found in the Academic Policies for the College of Arts and Science.) A maximum of 3 credit hours of chemistry research (3860) may be counted as in-depth chemistry course hours.

Additional math courses, such as Math 2300 and Math 2820, are highly recommended for the chemistry major.

Options for Concentration in Chemistry

In-depth chemistry courses can be chosen so as to define a focus area within chemistry. Students should consult with their major adviser about focus area options, or to formulate an individualized focus area option. Further descriptions of these options and other recommended courses can be found in the chemistry major handbook on the chemistry department homepage.

Chemical Biology Focus. The role of chemical processes in biological systems is fundamental to chemical biology. The journal *Nature Chemical Biology* defines chemical biology as “the use of chemistry to advance a molecular understanding of biology and the harnessing of biology to advance chemistry.” Chemical biology builds upon the disciplines of medicinal chemistry, biochemistry, pharmacology, genetics, bioorganic and organic chemistry. Suggested in-depth chemistry electives: 3020, 3710, 3860, 4210, 4720.

Chemical Sciences Focus. This option provides a broad foundation of chemistry, permitting flexibility in future career pathways and providing an excellent preparation for positions in chemical industry and for graduate programs in chemistry. Suggested in-depth chemistry electives: 3120, 3300, 3310, 3860.

Environmental Chemistry Focus. Environmental chemistry concerns the chemical phenomena that occur in nature. Environmental chemistry spans atmospheric, aquatic, and soil chemistry with a reliance on analytical chemistry for methods of analysis. Environmental chemistry can be applied to the understanding of issues such as ground water pollution, wastewater treatment, ozone depletion, and greenhouse gas emissions. Suggested in-depth chemistry electives: 3120, 3300, 3310, 3860, EES 4600.

Materials Chemistry Focus. Materials chemistry is concerned with designing and synthesizing new materials with specific useful properties and determining the relationships between physical properties and the composition and structure of these new materials. Materials chemistry encompasses all size regimes from bulk to nanoscale. Synthetic chemistry (inorganic and organic), physical chemistry, and analytical chemistry are all important components of this field. Suggested in-depth chemistry electives: 3120, 3630, 2610, 3310, 2610, 3860, 5320, 5610, 5620.

Minor in Chemistry

The minor in chemistry requires 18 credit hours of course work, including 4 credit hours from 1602 and 1602L or AP credit, and 14 credit hours selected from any of the courses acceptable for the major in chemistry.

Honors in Chemistry

Students with an overall GPA of at least 3.3 and a GPA of at least 3.4 in chemistry courses at the start of their junior year wishing to do honors will register for the honors research courses (CHEM 3980, 4980, 4999) beginning spring semester junior year. The CHEM 4965 and 4966 requirements are waived in lieu of the CHEM 3980, 4980, and 4999 registrations. Honors candidates must present a thesis on the research done under CHEM 3980, 4980, and 4999 and pass an oral examination. Additional information may be found in the chapter on Special Programs in the College.

Licensure for Teaching

Candidates for teacher licensure in chemistry at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog. One semester of the CHEM 4965–4966 sequence will be considered fulfilled by completing the Peabody student teaching requirements.

Introductory Courses

Introductory chemistry is offered in two different sequences, each with its own laboratory. Only one set of these courses may be taken for credit.

1. *Chemistry 1010, 1010L.* Intended for liberal arts students who are not planning to take any additional chemistry courses. It treats chemistry in a nonmathematical fashion, with some historical and philosophical features. Not for science and engineering students.
2. *Chemistry 1601–1602.* Designed for engineering, science, and premedical students. This course, which must be taken simultaneously with 1601L–1602L, serves as preparation for students intending to major in chemistry, biology, physics, or earth and environmental sciences. It is a more rigorous, mathematical approach to chemistry and a prerequisite for organic and other chemistry courses. It is not intended for liberal arts students taking a science course only to fulfill AXLE requirements.

Cinema and Media Arts

CHAIR Claire Sisco King

ASSOCIATE CHAIR Jonathan Waters

DIRECTOR OF UNDERGRADUATE STUDIES Jonathan Rattner

PROFESSORS Jay Clayton, Jennifer Fay, Lutz Koepnick

ASSOCIATE PROFESSORS Claire Sisco King, James McFarland, Andrea Mirabile, Jonathan Rattner

ASSISTANT PROFESSORS Cesar Ignacio Ruiz Cortez, Carmine Grimaldi

PRINCIPLE SENIOR LECTURERS Jonathan Waters

SENIOR LECTURERS Madeleine Casad

WRITER IN RESIDENCE Krista Knight

Affiliated Faculty

PROFESSORS Joy Calico (Music), Colin Dayan (English), Gerald Figal (History), Phillip Franck (Theatre), Jay Geller (Divinity School), Yoshikuni Igarashi (History), Daniel Levin (Psychology, Peabody), Kelly Oliver (Philosophy), Lynn T. Ramey (French), T. Sharpley-Whiting (African American and Diaspora Studies and French), Benigno Trigo, (Spanish), Mark A. Wollaeger (English)

ASSOCIATE PROFESSORS Vanessa Beasley (Communication Studies), Scott Juengel (English), Stanley Link (Music), Peter Lorge (History), Letizia Modena (French and Italian), Emanuelle Oliveira (Portuguese), Vesna Pavlovic (Art) Anand Taneja (Religious Studies)

ASSISTANT PROFESSOR Alex Dubilet (English),

LECTURER Jonathan Warren, Megan Minarich

COURSES OFFERED: CMA

Cinema and Media Arts offers an interdisciplinary major and minor that combine the practice of filmmaking with the study of film and media theory and history. Emphasizing cinema as both a modern aesthetic form and a hands-on cultural practice, the program trains students for careers in film and media production, communications, academic media studies, and community and social relations. The program encourages new ways of thinking, looking, and making in keeping with the every-changing world of modern media. A core curriculum is composed of film and media theory, history, and filmmaking. The major concludes with a capstone senior seminar.

Program of Concentration in Cinema and Media Arts

The CMA major consists of 33 credit hours, balanced between production and studies courses. This structure provides a broad foundation of knowledge and skills as students consider their career options. The requirements are as follows:

FOUNDATIONS (6 credit hours)

1500: Fundamentals of Film and Video Production

1600: Introduction to Film and Media Studies

CORE *REQUIREMENTS* (12 credit hours): Students must take two courses from among the following: 2240, 2250, 2260, 2270, and 2290; and two courses from among the following: 2300, 2301, 2302, 2370, and 2400.

2240: Narrative Filmmaking

2250: 16mm Filmmaking

2260: Digital Prouction Workshop

2270: Documentary Filmmaking

2290: Alternate Media Modes

- -

2300: Film and Media Theory

2301: Race in Film and Media

2302: Global Queer Cinema

2370: Film and Media Aesthetics

2400: History of World Cinema

ELECTIVES (12 credit hours): Students must take four additional CMA courses or cross-listed courses, including ones in the Core category (that are not being used to satisfy the Core Category requirement) and Special Topics courses.

SENIOR SEMINAR (3 credit hours): All seniors must take either 4961 or 4962.

Honors Program

The Honors Program in Cinema and Media Arts offers excelling students the opportunity to undertake a high-level independent research and/or creative project during their senior year. Projects must be rigorous and demonstrate a student's ability to sustain an argument, an aesthetic principle, or a narrative arc in a substantial form. For admission to the Honors Program, students must have and maintain until graduation a cumulative grade point average of 3.3 and a grade point average of 3.5 in courses counting toward the major. The student must submit an application to the program director outlining the thesis topic. In addition to completing the major requirements listed above, during the senior year the student is required to register for Cinema and Media Arts 4998 (3 credit hours) and 4999 (3 credit hours) in order to complete the thesis. An oral examination on the thesis and its area is to be completed during the final semester of undergraduate study.

Minor in Cinema and Media Arts

The minor consists of 18 credit hours balanced between production and studies courses. The requirements are as follows:

FOUNDATIONS (6 credit hours)

1500: Fundamentals of Film and Video Production

1600: Introduction to Film and Media Studies

CORE *REQUIREMENTS* (6 credit hours): Students must take one course from among the following: 2240, 2250, 2260, 2270, and 2290; and one course from among the following: 2300, 2301, 2302, 2370, and 2400.

2240: Narrative Filmmaking

2250: 16mm Filmmaking

2260: Digital Prouction Workshop

2270: Documentary Filmmaking

2290: Alternate Media Modes

- -

2300: Film and Media Theory

2301: Race in Film and Media

2302: Global Queer Cinema

2370: Film and Media Aesthetics

2400: History of World Cinema

ELECTIVES (6 credit hours): Students must take two additional CMA courses or cross-listed courses, including ones in the Core category (that are not being used to satisfy the Core Category requirement) and Special Topics courses.

Civil Engineering

CHAIR Caglar Oskay

ASSOCIATE CHAIR Hiba Baroudz

DIRECTORS OF GRADUATE STUDIES Daniel B. Work (Civil Engineering), Florence Sanchez (Environmental Engineering)

DIRECTORS OF GRADUATE RECRUITING Hiba Baroud (Civil Engineering), Shihong Lin (Environmental Engineering)

DIRECTOR OF UNDERGRADUATE STUDIES Lori A. Troxel

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PROFESSORS Mark D. Abkowitz, Douglas E. Adams, John Ayers, David J. Furbish, David S. Kosson, Eugene J. Leboeuf, Sankaran Mahadevan, Caglar Oskay, Florence Sanchez, Matthew Weinger, Daniel B. Work

PROFESSORS OF THE PRACTICE Curtis D. Byers, Sanjiv Gokhale, Steven L. Krahn, Lori A. Troxel

RESEARCH PROFESSORS Janey S. Camp, Craig E. Philip

ADJUNCT RESEARCH PROFESSORS Jesus Gomez Velez

ASSOCIATE PROFESSORS Hiba Baroud, Alan R. Bowers, Ravindra Duddu, Jonathan Gilligan, Shihong Lin, Jonathan Sprinkle, Ahmad Taha

RESEARCH ASSOCIATE PROFESSORS Kevin G. Brown, Andrew G. Garrabrants

ASSISTANT PROFESSOR OF THE PRACTICE Ghina Absi

RESEARCH ASSISTANT PROFESSORS Leah Dundon, Chen Gruber, Pranav Karve

ADJUNCT PROFESSORS Gregory L. Cashion, Allen G. Croff, James P. Dobbins, Andrea George, Boualem Hadjerioua, Ofra Klein-BenDavid, Janette Meyers, Vic L. McConnell L. Hampton Turner IV, Hans A. Van der Sloot, Raymond G. Wymer

ADJUNCT INSTRUCTORS David Livingston, Keith Loiseau, Heather Smith, Bryan Tharpe, Hannah Walter, Adrian Ward

LECTURER Phillip Collins

COURSES OFFERED: CE

Vanderbilt's Department of Civil and Environmental Engineering offers a broad-based education in civil and environmental engineering fundamentals, coupled with development of leadership, management, and communications skills to establish a foundation for lifelong learning and flexible career development. This goal requires going beyond technical competence in a balanced education to develop future leaders in the fields of consulting, industry, business, law, government, and research. Civil engineers must be able to face complex problems of modern society involving the development of physical facilities that serve the public while protecting the environment and preserving social values. Challenges facing civil and environmental engineers concern housing, urban transportation, pollution control, water resources development, industrial development, maintaining and advancing our nation’s aging infrastructure, and exploring space. Addressing these challenges

with today’s limited resources requires innovative and original ideas from highly-skilled engineers.

Undergraduates majoring in civil engineering receive a strong background in mathematics, science, engineering science, and engineering design. The program also includes courses in economics, humanities, social sciences, resources management, and public policy. Students participate in design teams and laboratory studies as well as classroom activities. Use of various computer-based methods is integral to problem solving and design.

Degree Programs. At the undergraduate level, the Department of Civil and Environmental Engineering offers the B.E. in civil engineering. The curriculum includes upper-level analysis and design courses in structural, geotechnical, environmental, water resources, and transportation engineering. In addition, a major in chemical engineering with a minor in environmental engineering is available.

Vanderbilt’s B.E. in civil engineering prepares students for entry-level positions in many specialty areas of civil engineering, as well as many other types of careers, such as business, construction, and law. Today, however, and even more so in the future, professional practice at a high level will require an advanced degree. We recommend that students seriously consider pursuing the M.S. or M. Eng. soon after obtaining the B.E.

At the graduate level, the department educates leaders in infrastructure and environmental engineering research and practice, with emphasis on the use of reliability and risk management. Reliability and risk management includes engineering design, uncertainty analysis, construction and repair, life-cycle and cost-benefit analysis, information management, and fundamental phenomena intrinsic to the understanding of advanced infrastructure and environmental systems. Example applications include performance, reliability and safety of structures, restoration of contaminated sites, transportation control systems, management of environmental resources, and enhancement of the eco-compatibility of industry. Development and application of advanced information systems as applied to civil and environmental engineering needs is an important part of the program.

The graduate program in civil engineering offers the M.S. and Ph.D., with emphasis in the areas of structural engineering and mechanics and transportation engineering.

The graduate program in environmental engineering offers the M.S. and Ph.D. in the areas of environmental engineering and environmental science, with emphasis in water resources, quality, and treatment; resilience and sustainability; nuclear environmental engineering; and environmental materials and materials durability. Both thesis and non-thesis options are available at the M.S. level.

The graduate programs in both civil engineering and environmental engineering also offer the master of engineering (M.Eng.), an advanced professional degree especially designed for practicing engineers wanting to pursue post-baccalaureate study on a part-time basis, and for engineers seeking greater emphasis on engineering design as part of graduate education.

B.E./M.Eng. Five Year Program. Students seeking advanced study in civil and environmental engineering may be interested in the combined B.E./M.Eng., enabling students to complete the B.E. in civil engineering and M.Eng. in civil engineering or environmental engineering in five years.

Construction Management Five Year Program. Students seeking advanced study in construction management may be interested in the combined B.E./M.Eng., enabling students to complete the B.E. in civil engineering and M.Eng. in civil engineering (construction management emphasis) in five years.

Undergraduate Honors Program. Recognized with the diploma designation Honors in Civil Engineering, exceptional students may be invited in their junior year to participate in the civil engineering Honors Program. Designed as a unique individualized educational experience, participants work closely with departmental faculty members to tailor a selection of courses that actively immerses them in a selected field of study. Experiences include enrollment in a 3 semester hour independent study course and participation in a summer research internship. Honors Program participants are especially well-prepared to enter graduate study, and they may count the independent study course towards their civil engineering technical electives.

Facilities. The civil engineering laboratory provides for static and dynamic testing of materials and structural components and assemblies. Testing facilities include capabilities of testing composites, metals, and concrete under static loads, fatigue, base acceleration (to simulate seismic events) and intermediate to high speed impacts (to simulate responses to blast events). Full soils testing facilities are available. Hydraulics facilities include several model flow systems to illustrate principles of fluid mechanics and hydrology. The transportation laboratory is computer-based, with emphasis on transportation systems and design, intelligent transportation systems, and geographic information systems.

The environmental laboratories are fully supplied with modern instrumentation for chemical, physical, biological, and radiological analysis of soils, sediments, water, wastewater, air, and solid waste. They include equipment for the study of biological waste treatment, physical-chemical waste treatment, contaminant mass transfer, and state-of-the-art instrumentation for gas and liquid chromatography, mass spectroscopy, atomic absorption spectroscopy, gamma spectroscopy, inductively coupled plasma mass spectroscopy, gas adsorption (for pore structure determination), thermal mechanical analysis, modulated scanning differential calorimetry, and simultaneous thermal gravimetric analysis differential scanning calorimetry/mass spectroscopy. All are available for student use in courses, demonstrations, and research.

Curriculum Requirements

The B.E. in civil engineering requires a minimum of 125 hours, distributed as follows:

1. Mathematics (14 hours). Required courses: MATH 1300, 1301, 2300, 2420.
2. Basic science (12 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L.
3. Basic science elective (4 hours). To be selected from: BSCI courses numbered 1510 and 1510L and above; EES 1030 and 1030L, 1081 and 1081L, 1510 and 1510L.
4. Computing (3 hours). Required course: CS 1100 or 1101 or 1103 or 1104.
5. Engineering Fundamentals (26 hours). Required courses: ES 1401, 1402, 1403; CE 2101, 2200, 2205, 3700, 3700L; ENGM 2160; ME 2190; MSE 2205; ME 2220 or CHBE 2200 (students with interests in Environmental and Infrastructure Sustainability Engineering are encouraged to enroll in CHBE 2200).
6. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
7. Open electives (6 hours).
8. Technical electives (3 hours). To be selected from: (a) courses in BME, CHBE, CE, ENVE, ECE, ME, MSE (except any course numbered 2860 and MSE 3860, 3889, 3890), (b) ENGM 3000, 3010, 3200, 3650; (c) all courses acceptable as science electives as indicated above; (d) CHEM 1602 and above; (e) PHYS courses above 2000 (astronomy not accepted); and (f) MATH 2410, 2600, and courses 2811 and above (except 3000); (g) all CS courses 2000 and above (except CS 2860 and 4959); and (h) DS 3100, 3262. Students with an interest in Structural Engineering are encouraged to take MATH 2410 or 2600 as their technical elective.
9. Civil Engineering Core (27 hours). Required courses: CE 2120, 3100W, 3200, 3205, 3300, 3501, 3705, 4400, 4950, 4951, and 4959.
10. Civil Engineering Program Electives (6 hours). To be selected from: CE 3250, 3600, 4150, 4250; ENVE 4610, 4615, 4625, 4800.
11. Civil Engineering Design Electives (6 hours). To be selected from: CE 4150, 4200, 4210, 4240, 4250, 4425, 4430, 4500, 4505, 4510; ENVE 4305, 4610, 4625, 4710.

Students may use CE program electives, CE design electives, technical electives, and open electives to gain additional depth and expertise. Students with interests in structural engineering are recommended to take electives such as CE 3250, 4200, 4210, 4211, 4250, 4300, ENVE 4305, and ME 4259, 4275. Students interested in environmental and infrastructure sustainability engineering are recommended to take electives such as CE 3600, 4100, 4150, 4240, 4300, ENVE 4305, 4600, 4605, 4610, 4615, 4620, 4700, 4705, 4707, 4710, 4715, 4716, and 4720. Specific courses selections should be discussed with their academic adviser. Students desiring

advanced topic coverage should also consider 5000- level courses, with approval of their adviser.

Undergraduates in civil engineering may apply the pass/fail option only to courses taken as liberal arts core or open electives, subject to the school requirements for pass/fail.

Specimen Curriculum for Civil Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
MATH 2300	Multivariable Calculus	3	–
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CE 2101	Civil and Environmental Engineering Information Systems	3	–
CE 2120	Sustainable Design in Civil Engineering	3	–
CE 2200	Statics	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
CE 2205	Mechanics of Materials	–	3
CE 3501	Transportation Systems Engineering	–	3
ME 2190	Dynamics	–	3
	Thermodynamics (ME 2220 or CHBE 2200)	–	3
	Liberal Arts Core	–	3
		16	18
JUNIOR YEAR			
CE 3200	Structural Analysis	3	–
CE 3700, 3700L	Fluid Mechanics and Laboratory	4	–
MSE 2205	Strength and Structure of Engineering Materials	1	–
	CE Program Elective	3	–
	Elective*	3	–
	Liberal Arts Core	3	3
CE 3100W	Civil and Environmental Engineering Laboratory	–	2
CE 3205	Structural Design	–	3
CE 3300	Risk, Reliability, and Resilience Engineering	–	3
CE 3705	Water Resources Engineering	–	3
ENGM 2160	Engineering Economy	–	3
		17	17
SENIOR YEAR			
CE 4400	Construction Project Management	3	–
CE 4950	Civil Engineering Design I	1	–
CE 4959	Senior Engineering Design Seminar	1	–
	CE Design Elective	3	3
	Elective*	3	3
	Liberal Arts Core	3	3
CE 4951	Civil Engineering Design II	–	2
	Open Elective	–	3
		14	14

*To be selected toward satisfying the following degree requirements: 6 hours of Program Electives, 3 hours of Technical Electives, and 6 hours of Open Electives.

Pre-Architecture Advising

Civil engineering students interested in pursuing architecture at the graduate level should include courses that emphasize a broad sense of art and architectural history, including courses in studio art. Before applying to graduate programs, students will need to develop a portfolio of creative work that generally includes drawing, prints, sculpture, photographs, and creative writing. Further information is at: as.vanderbilt.edu/paa/.

Minor in Environmental Engineering

A minor in environmental engineering is available to all non-civil engineering students. It requires a total of 15 hours of environmental engineering courses, comprising 6 hours of required courses and 9 hours of electives, chosen from the following list:

Required Courses (6 hours)

CE 3600 – Environmental Engineering

ENVE 4600 – Environmental Chemistry

Elective Courses (9 hours)

CE 3705 – Water Resources Engineering

CE 4100 – Geographic Information Systems

ENVE 4305 – Enterprise Risk Management

ENVE 4605 – Environmental Thermodynamics, Kinetics, and Mass Transfer

ENVE 4610 – Biological Processes in Environmental Systems

ENVE 4615 – Environmental Assessments

ENVE 4620 – Environmental Characterization and Analysis

ENVE 4625 – Environmental Separations Processes

ENVE 4700 – Energy and Water Resources

ENVE 4705 – Physical Hydrology

ENVE 4710 – Hydrology

ENVE 4715 – Groundwater Hydrology

ENVE 4720 – Surface Water Quality Modeling

ENVE 4800 – Nuclear Environmental Engineering

Minor in Energy and Environmental Systems

The minor in energy and environmental systems is designed to provide students with a working knowledge of the fundamentals of energy systems and their impact on the environment. The future health and well-being of humanity hinge in large part on smart production and use of energy, water, and related resources, as these are central determinants of climate change, habitable space, and human and ecological health. This program examines the relationships among individual, institutional, and societal choices for energy production and use, and the impacts and benefits of these choices on the environment and health through climate, water quality, and natural resources. It requires a total of 15 semester hours of course work, some of which may be taken as electives associated with the student’s major program. Five courses are required: two core courses and three elective courses taken from at least 2 areas: Area I: Energy Systems, Area II: Environmental Engineering, and Area III: Environmental Survey.

Required Courses (6 hours)

ENVE 4615 – Environmental Assessments

CE 4150 - Energy Systems Engineering

Elective Courses (9 hours)

Area I: Energy Systems

ECE 4267 – Power System Analysis

ME 3890 – Special Topics: Nuclear Power

ME 4260 – Energy Conversion I

ME 4264 – Internal Combustion Engines

ME 4265 – Direct Energy Conversion

Area II: Environmental Engineering

CE 3600 – Environmental Engineering

CE 3705 – Water Resources Engineering

ENVE 4305 – Enterprise Risk Management

ENVE 4605 – Environmental Thermodynamics, Kinetics, and Mass Transfer

ENVE 4620 – Environmental Characterization and Analysis

ENVE 4710 – Hydrology

ENVE 4800 – Nuclear Environmental Engineering

ME 4262 – Environmental Control

Area III: Environmental Survey

ANTH 4154 – Energy, Environment, and Culture

CE 4100 – Geographic Information Systems

CE 4430 – High Performance and Green Buildings

EES 1080 – Earth and the Atmosphere

EES 2110 – Introduction to Climate Change

PHIL 3611 – Environmental Philosophy

SOC 3315 – Human Ecology and Society

Classes for Students in Other Vanderbilt Schools and Colleges (Blair)

The Blair School of Music welcomes all Vanderbilt students into its classes and studios. A large number of courses are designed specifically for non-majors. Many classes are held in Sarratt Cinema, Alumni Hall, and other central campus locations. Non-majors may also participate in any and all music major courses for which they are qualified.

A wide variety of music courses fulfill liberal arts core requirements for undergraduates in the College of Arts and

Science, the School of Engineering, and Peabody College. Students in the School of Engineering can count up to 12 hours of MUSE, MUSO, COMP, MREP, MUTH, and performance courses, except MUSO 1001, towards liberal arts core requirements. How students in the College of Arts and Science and Peabody College may use music courses varies according to their specific degree and program requirements.

Ensembles

The Blair School of Music sponsors several major performing ensembles, including the Vanderbilt University Singers, Vanderbilt Chorale, Orchestra, Wind Symphony, Opera Theatre, and Blair Big Band. Other non-western and vernacular ensembles, such as the African Performing Ensemble and the Steel Drum/Pan Ensemble, are also available for credit. A large number of smaller ensembles and chamber music groups also exist, offering students a wide variety of experiences.

Auditions. Auditions for the major performing ensembles are held at the beginning of each semester. Audition information can be found on the Blair School of Music website. Assignment is at the discretion of the director. Students need the approval of the appropriate faculty chamber music coordinator before enrolling in chamber music; if participation has not been discussed with the coach, students may register tentatively for the “to be assigned” section of chamber music. Openings in ensemble are not guaranteed.

Credit. Students may register for course credit. Audit status or registration for zero hours may be possible with permission of the director and the associate dean of the student's school or college.

Performance

Performance instruction in individual or group settings is available for university credit for an additional fee. Private instruction is offered in all orchestral instruments and in piano, organ, guitar, saxophone, euphonium, steel drum/pan, and voice. Credit is flexible, but beginning students may register for only 1 credit hour. Students can earn either 1 or 2 credit hours each semester, depending on lesson length and number of required practice hours. Students in the School of Engineering can count up to 12 hours of performance courses towards liberal arts core requirements. For others, performance is elective credit. Group instruction is offered in piano, guitar, and percussion; groups have maximum of six students and earn 1 credit hour.

Group Performance Instruction: Non-Major

Group instruction is designed for beginning students with emphasis on basic technique, rhythm, tone, and musical interpretation. Groups are limited to six students.

Registration. New students must interview with the appropriate faculty member before finalizing registration. Instructions are given in the online registration system.

Fees. Music fees are in addition to tuition charges and are not refundable after the change period. The cost for group instruction is $1,013 per semester for one 50-minute class weekly. (Fees, set annually by the Board of Trust, are subject to review and change without further notice.)

Individual Performance Instruction

Individual instruction is focused on the art and practice of an instrument or voice, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Blair offers collegiate-level performance instruction for non-majors at the 1100 level. 2100-, 2200-, 4100- and 4200-level courses are open only to B.Mus. and B.Mus.Arts students.

Registration. New students must interview with the appropriate faculty member before finalizing registration.

Information is available in YES. Enrollments are limited.

Credit. University students enrolled in individual instruction may earn 1 or 2 credit hours depending on lesson length and practice commitment.

- 30-minute or 45-minute lessons with 5 hours minimum weekly practice earn 1 credit
- 60-minute lessons with 10 hours minimum weekly practice earn 2 credit
- Beginners may not register for more than 1 hour of credit

Fees. Music fees are charged in addition to regular tuition, and are not refundable after the change period.

Students receiving need-based financial aid may request that music fees be considered in their financial aid package. Students with a declared second major or minor in music will be charged approximately one-half the music performance instruction fee. For instrument courses numbered 1100, fees per semester are as follows:

	Elective Credit/Non-Blair Students	2nd majors and minors receive 50% discount
One 30-minute lesson weekly	$1,311	
One 45-minute lesson weekly	$1,838	
One 60-minute lesson weekly	$2,304	

Fees, set annually by the Board of Trust, are subject to review and change without further notice.

Music Minors

Students may elect one of four minors: music, music composition, musicology/ethnomusicology, or music performance. Formal admission to the music minor or performance minor is contingent upon a performance audition that meets departmental standards for the intermediate or advanced level of study. Following interviews with the appropriate department, students plan their studies with Blair advisers. Contact information and declaration paperwork are available online: blair.vanderbilt.edu. Students must complete all requirements for the music minors with standard grading basis (that is, not Pass/Fail).

Music Minor. 24 or 25 hours.

Music Theory. 6 or 7 hours.

MUTH 1200 and 1210 (6 hours); or MUTH 2100/2110 and MUTH 2200/2220 (7 hours)

Musicology/Ethnomusicology. 12 hours.

MUSL 2200W or 1200

One course chosen from: MUTH 3890, MUSL 1111-02 (Shakespeare and Music), 1210, 1220, 1240, 3220-3240, and 3890

One course chosen from: MUSL 1100, 1105, 1111-01 (Music and Global Health), MUSL 1111-03 (Music and Modernism), MUSL 1111-04 (Music, Identity, and Diversity), 2110, 2150, 2610, 3220-3240, and 3890

One course chosen from: MUTH 3890 or any MUSL course

Performance. 4 hours.

Individual performance instruction in a single instrument for at least 4 semesters (any orchestral instrument, piano, organ, guitar, saxophone, euphonium, voice, or JAZZ 1100).

Students must meet minimum performance standards for admission to the program, earning a total of 4 hours. Declaration forms are available at blair.vanderbilt.edu/academics.

Ensemble. 2 hours (2 different semesters).

Participation for two semesters in an appropriate performing ensemble, after consultation with the minor adviser.

Musicology/Ethnomusicology Minor. 18 or 19 hours.

Music Theory. 6 or 7 hours.

MUTH 1200 and 1210 (6 hours); or MUTH 2100/2110 and MUTH 2200/2220

Musicology/Ethnomusicology. 12 hours.

MUSL 2100, MUSL 2200W*, MUSL 3100, and one course from MUSL 3220-3240 or 3890.

*Students who have completed MUSL 1200 must substitute another course for MUSL 2200W, selected from MUSL 1100, 1105, 1210, 1220, 1240, 1300, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 2110, 2150, 2320, 2600, 2610, 3220-3240, 3160, or 3890.

Music Composition Minor. 26 hours.

Music Theory. 13 hours.

MUTH 2100, 2200, 2300, 2400; MUTH 2110, 2220

Musicology/Ethnomusicology. 6 hours.

MUSL 1200 or 2200W, 3100

Composition. 7 hours.

COMP 1100; COMP 1150 (4 semesters)

Formal admission into the music composition minor requires departmental approval; successful completion of COMP 1100 (Composition Workshop) is a pre-requisite to applying. Upon completion of COMP 1100, applicants may submit to the Composition Chair a portfolio of three completed works, with scores and recordings (MIDI is acceptable). The entire composition faculty will then evaluate the portfolio and make a final decision.

Music Performance Minor. 25 or 26 hours.

Music Theory. 6 or 7 hours.

MUTH 1200 and 1210 (6 hours); or MUTH 2100/2110 and MUTH 2200/2220

Musicology/Ethnomusicology. 6 hours.

MUSL 2200W or 1200

One course chosen from MUSL 3220-3240 or 3890 (Jazz students: MUSL 1620)

Performance. 8–11 hours.

Individual instruction in a single instrument for at least 6 semesters (any orchestral instrument, piano, organ, guitar, saxophone, euphonium, or voice.) Jazz students earn 8 hours in 4 semesters of JAZZ 1100.

Students must meet minimum performance standards for admission to the program, earning a total of 8–11 hours. Repertoire information and declaration forms are available at blair.vanderbilt.edu/academics.

Ensemble. *2 hours (two different semesters).*

Participation for two semesters in an appropriate performing ensemble, as assigned following audition. String, woodwind, brass, percussion, and harp students must audition for MUSE 1010, Instrumental Ensemble.

Students who are not placed in MUSE 1010 may participate in another appropriate ensemble, contingent upon permission of the ensemble instructor and the studio instructor. Guitar and voice students must audition for MUSE 1020, Vanderbilt University Singers. Keyboard students must participate as a pianist for one semester in MUSE 2300, 2310, 2320, 2330, 2210, 2230, or 2270; or in 1010, 1020, 1030, or 2120, contingent upon permission of the ensemble instructor and the piano instructor. Jazz students may choose MUSE 1310, 1320, or 1330.

Elective for Jazz students. *2-3 hours*. One or two courses chosen from JAZZ 1150, 1210, 1220, 1230; MUSO 1340, 1342; MUTH 3120; MUSL 1105, 1600, 1630, 2110, 2600, 2610, 2620, 3160.

Music as a Second Major

Blair offers a non-professional liberal arts major in music that requires a minimum of 31 hours. Designed jointly by Blair and the College of Arts and Science, it is also available to Peabody and Engineering students as a second major. Formal admission to the second major is contingent upon a performance audition that meets departmental standards for the intermediate or advanced level of study. Following interviews with the appropriate performance department, students plan their studies with Blair adviser Professor Russell Platt, coordinator of the program. Contact information and declaration paperwork are available online: blair.vanderbilt.edu. Students must complete all requirements for the music as a second major with standard grading basis (that is, not Pass/Fail).

Music Major (Second Major). 31 hours.

Music Theory. 12 hours.

MUTH 2100/2110, MUTH 2200/2220, MUTH 2300/2330, and MUTH 2400.

Musicology/Ethnomusicology. 9 hours.

MUSL 2100, 2200W*, 3100.

*Students who have completed MUSL 1200 must take an additional course instead of MUSL 2200W, selected from MUSL 3220-3240.

Individual Performance Instruction. 6 hours.

Six semesters of study in any orchestral instrument, piano, organ, guitar, saxophone, euphonium, or voice. Students must meet minimum performance standards for admission to the program, earning a total of 6 hours.

Repertoire information and declaration forms are available in the Blair office and online at blair.vanderbilt.edu/academics.

Ensemble. 2 hours (two different semesters).

Participation for two semesters in an appropriate performing ensemble, as assigned following audition. String, woodwind, brass, percussion, and harp students must audition for MUSE 1010, Instrumental Ensemble.

Students who are not placed in MUSE 1010 may participate in another appropriate ensemble, contingent upon permission of the ensemble instructor and the studio instructor. Guitar and voice students must audition for MUSE 1020, Vanderbilt University Singers. Keyboard students must participate as a pianist for one semester in MUSE 2300, 2310, 2320, 2330, 2210, 2230, or 2270; or in 1010, 1020, 1030, or 2120, contingent upon

permission of the ensemble instructor and the piano instructor.

Elective. 2–3 hours.

One course in music theory, musicology/ethnomusicology, or conducting, chosen from MUTH 2400, 3130, 3110, 3210, 3200, 3120, 3140, 3160, 3890; any MUSL; MCON 3000.

Classical and Mediterranean Studies

INTERIM CHAIR Kevin D. Murphy

CHAIR Phillip I. Lieberman

DIRECTOR OF UNDERGRADUATE STUDIES Daniel P. Solomon

PROFESSORS EMERITI Robert Drews, Susan Ford Wiltshire

PROFESSORS William P. Caferro

ASSOCIATE PROFESSORS Philip I. Lieberman, Jelena V. Bogdanovic, Ari Z. Bryen, Kathy L. Gaca, David A. Michelson, Joseph L. Rife

ASSISTANT PROFESSOR James L. Zainaldin

PRINCIPAL SENIOR LECTURER Daniel P. Solomon

SENIOR LECTURERS Jason R. Harris, Isabella Reinhardt, Chiara Sulprizio

Affiliated Faculty

PROFESSORS Thomas A. McGinn (History), Choon-Leong Seow (Divinity), David Wasserstein (Jewish Studies and History)

ASSOCIATE PROFESSORS Scott F. Aikin (Philosophy), Betsey Robinson (History of Art and Architecture)

ASSISTANT PROFESSOR OF THE PRACTICE Elsa Filosa (French and Italian)

COURSES OFFERED: ARAM, CHEB, GRK, LAT

The Department of Classical and Mediterranean Studies offers students an interdisciplinary perspective on the culture and history of a region at the crossroads of human civilization since antiquity. The study of the Mediterranean world examines the influential achievements and legacy of the Greeks and Romans alongside the emergence and spread of Judaism, Christianity, and Islam to the East. It also explores the premodern to modern

development of southern Europe, North Africa, and western Asia, which have variously responded to the ancient and medieval past. The program offers courses in the history, religion, philosophy, art, literature, society, and culture of the Mediterranean world. In teaching and research, the faculty promote the integrated study of past and present through both written and material sources—textual, artifactual, visual, spatial—and they embrace analytical techniques in the digital humanities. Students thus have the opportunity to learn several ancient and medieval languages of Europe and the Middle East and to pursue experiential learning overseas, from intensive modern language study to archaeological fieldwork to the investigation of evolving cultural and natural landscapes.

Majors in classical and Mediterranean studies are introduced to the distinctive geography and history of the region but choose their courses in one of three tracks. These tracks have shared content but offer different viewpoints and training. Majors who expect to apply for graduate study should work closely with an adviser to devise an appropriate curriculum.

Students who pursue Classical and Near Eastern Languages and Cultures investigate one or more ancient to medieval cultural tradition(s) in the Greco-Roman and Near Eastern spheres through the study of original texts and their historical setting, such as Greek tragedy, Latin oratory, Hebrew scripture, the Qur'an, or early French romance.

Students who pursue Mediterranean Archaeology explore human diversity and experience from Classical Antiquity to the Middle Ages through the study of material and visual culture. They, too, learn to read textual sources while acquiring the skills of archaeological and art-historical research.

Students who pursue Mediterranean Studies, the most flexible track for a broad range of interests, can choose to engage with a variety of ancient, medieval, or modern topics through focused or comparative study.

The Department of Classical and Mediterranean Studies also offers a minor in Mediterranean Archaeology and a minor in Mediterranean Studies. A student cannot earn more than one minor in the program.

The Honors Program requires the production of a thesis representing advanced, original, and substantial research.

Students are strongly recommended to pursue study abroad in the Mediterranean or an adjacent region. The department has long supported the Intercollegiate Center for Classical Studies, the American Academy in Rome, and the American School of Classical Studies in Athens. Many different international experiences are possible through Vanderbilt-approved semester-long programs, Maymesters, research projects, and summer study, for example, in Italy, Greece, and Israel. Students are encouraged to participate in local and regional conferences, where they can share the results of collaborative or independent work. Those concentrating on Greek and/or Latin language who qualify academically are invited to join Eta Sigma Phi, the national classics honor society.

Program of Concentration in Classical and Mediterranean Studies

Students majoring in Classical and Mediterranean Studies must take ten courses, including one foundation course (CLAS 1010). The major is arranged into three tracks and an honors track. Students must formally declare a track 1–3 at the time the major is declared. A score of 4 or 5 on the AP Latin exam earns 3 hours of credit for Latin 2202, which may be applied toward any of the major tracks. Any course for which a student has earned credit will count for one and only one of the requirements or sub-requirements for any of the major tracks or minors.

Track 1: Classical and Near Eastern Languages and Cultures

30–34 total credit hours including:

1. One foundation course: CLAS 1010 (3 credit hours);
2. Language/Literature: Five courses from Course List A (15 credit hours, or 19 credit hours if including ARA 1101– 1102);
3. Culture: Four courses from Course Lists B–D numbered 2060 or above (12 credit hours).

Latin courses at the 1000 level do not count toward this major track. Students who fulfill their language/literature requirement (#2 above) by completing courses in one language must, in consultation with the director of undergraduate studies, earn credit for at least one course in a different cultural tradition (e.g., Greek, Roman, Jewish, Christian, Islamic) or period (e.g., ancient, medieval).

Track 2: Mediterranean Archaeology

30–34 total credit hours including:

1. Two foundation courses: CLAS 1010 and 1020 (6 credit hours);
2. Language/Literature: Two courses from Course List A (6 credit hours, or 10 if including ARA 1101–1102);
3. Method and Theory: One course from Course List E (3 credit hours);
4. Three courses in the history and in the art, architecture, and archaeology of the ancient to medieval Mediterranean world, including one from Course List B, one from Course List C, and one from Course List B or C (9 credit hours);
5. Electives: Two courses from Course Lists A–E or from the following (6 credit hours):

ANTHROPOLOGY: 1101, Introduction to Anthropology; 1201, Introduction to Archaeology; 1301, Introduction to Biological Anthropology; 1601, Introduction to Language and Culture; 2211, Archaeology; 2220, Human Landscapes; 2227, Food in the Ancient World; 2370, Death and the Body; 3160, Anthropologies and Archaeologies of Community; 3161, Colonial Encounter in the Americas; 3200, Ancient Cities; 3202, The Collapse of Civilizations.

With the permission of the director of undergraduate studies, students may fulfill the method and theory requirement (#3 above) by completing a program of practical archaeology (e.g., CLAS 3700, 3710, 3720, 3730, ANTH 3866, participation in an excavation or field survey, an internship in conservation or curation). No more than 15 credit hours of courses numbered below 2050 may count toward this major track.

Track 3: Mediterranean Studies

30 total credit hours including:

1. One foundation course: CLAS 1010 (3 credit hours)
2. Historical basis: Four courses from Course Lists A–D (12 credit hours);
3. Comparative perspectives: Five courses from Course Lists A–F (15 credit hours).

Students may apply up to three semesters of one Mediterranean language toward the historical basis requirement of this major track, including either an ancient to medieval language in Course List A or Catalan, French, Italian, Portuguese, or Spanish. French, Italian, Latin, and Spanish courses at the 1000 level do not count toward the major. No more than 12 credit hours of courses numbered below 2050 may count toward this major track.

Honors Program

The Honors Program in Classical and Mediterranean Studies offers students a more intensive concentration in their main field.

Candidates should signal their interest to the director of undergraduate studies by the beginning of the second semester of the junior year.

Admission requirements are:

1. A cumulative GPA of 3.3, and a GPA of 3.5 in courses that count toward the major.
2. Approval by the faculty of a 2–3 page thesis proposal, due by the middle of the second semester of the junior year.

In addition to maintaining the stated GPA throughout the senior year, Honors students must complete CLAS 4998 and 4999 for 3 credit hours each in addition to the 30–34 credit hours required by the major, culminating in a written thesis that is defended orally. A committee of three faculty members (two of whom must hold sole or joint appointments in the Program in Classical and Mediterranean Studies) will evaluate the thesis and the oral defense.

Minor in Mediterranean Archaeology

Students are required to complete CLAS 1010, 1020, and 12 additional credit hours in courses that count toward Track 2 of the concentration, of which at least 9 credit hours must be from courses numbered 2060 or above.

Minor in Mediterranean Studies

Students are required to complete CLAS 1010 and 15 additional credit hours in courses that count toward Track 3 of the concentration, of which at least 9 credit hours must be from courses numbered 2060 or above.

Approved List of Courses

Ancient to Medieval Mediterranean Languages and Literatures

CLASSICAL HEBREW: 1101, Beginning Classical Hebrew I; 1102, Beginning Classical Hebrew II; 2200, Intermediate Classical Hebrew; 3010, Historical Hebrew Grammar; 3020, Classical Hebrew Poetry; 3030, West Semitic Inscriptions.

GREEK: 1101, Beginning Greek I; 1102, Beginning Greek II; 2201, Intermediate Greek I: Classical and Koiné Greek; 2202, Intermediate Greek II: Homer's *Iliad;* 3010, The Greek Orators; 3020, The Greek Historians; 3040, Readings in Plato and Aristotle; 3100, The Greek Tragedians; 3110, Greek Lyric Poetry; 3200, Early Christian Writers; 3850, Independent Study; 3890, Special Topics in Greek Literature.

LATIN: 1101, Beginning Latin I; 1102, Beginning Latin II; 1103, Intensive Elementary Latin; 2201, Intermediate Latin I; 2202, Intermediate Latin II; 3010, The Writings of Caesar; 3020, Cicero and the Humanistic Tradition; 3030, Latin Letters; 3040, The Roman Historians; 3050, Suetonius; 3060, Tacitus; 3070, Sallust; 3100, Roman Comedy; 3110, Catullus; 3120, Lucretius: *De Rerum Natura;* 3130, Vergil: *The Aeneid;* 3140, The Lyric Poetry of Horace; 3150, Latin Elegy; 3160, Ovid; 3170, Roman Satire; 3180, Neronian Writers; 3200, Early Christian Writers; 3300, Ancient Conspiracy – Theory and Practice; 3850, Independent Study; 3890, Special Topics in Latin Literature.

ARABIC: ARA 1101, Elementary Arabic I; 1102, Elementary Arabic II; 2201, Intermediate Arabic I; 3301, Arabic of the Qur'an and Other Classical Texts; RLST 4593, Advanced Readings in Islamic Tradition.

UGARITIC: CHEB 2300, Ugaritic.

ARAMAIC AND CLASSICAL SYRIAC: ARAM 2400, Introduction to Classical Syriac; 2500, Egyptian Aramaic; CHEB 3030, West Semitic Inscriptions.

AKKADIAN: CLAS 3300, Elementary Akkadian I; 3301, Elementary Akkadian II.

MEDIEVAL TO RENAISSANCE ITALIAN: ITAL 3100, Literature from the Middle Ages to the Renaissance;

3242, Dante in Historical Context.

OLD SPANISH: SPAN 4400, Origins of Spanish Literature.

Ancient to Medieval Mediterranean History

CLASSICAL AND MEDITERRANEAN STUDIES: 2100, History of the Ancient Near East; 2110, History of Greece to Alexander the Great; 2120, Greece and the Near East from Alexander to Constantine; 2150, History of the Roman Republic; 2160, History of the Roman Empire; 2180, The Mediterranean World from Late Antiquity to the Middle Ages.

HISTORY: 1190, A History of Islam; 1350, Western Civilization to 1700; 1600, European Economic History 1000–1700; 2220, Medieval and

Renaissance Italy, 1000–1700; 2230, Medieval Europe, 1000–1350.

Ancient to Medieval Mediterranean Art, Architecture, and Archaeology

CLASSICAL AND MEDITERRANEAN STUDIES: 1020, Introduction to Mediterranean Archaeology; 2200, Archaic and Classical Greek Art and Architecture, 1000 to 400 B.C.E.; 2210, Late Classical Greek and Hellenistic Art and Architecture; 2250, Roman Art and Architecture; 2260, The Art of Pagans, Christians, and Jews; 2270, Early Christian and Byzantine Art; 3200, The Greek City; 3210, Religions of the Ancient Mediterranean; 3220, The Trojan War in History, Art, and Literature; 3230, Alexander the Great; 3240, Greek Culture in the Roman World; 3881, Internship Readings and Research.

HISTORY OF ART AND ARCHITECTURE: 1100, History of Western Art; 1121, History of Western Architecture; 1285W, Introduction to Medieval Art; 2180, Islamic Art and Architecture; 2200, Cities of the Ancient Mediterranean World; 2210, Art and Architecture of Ancient Egypt; 2220, Greek Art and Architecture; 2270, Early Christian and Byzantine Art; 2275, The Cross and the Crescent: Byzantine-Islamic Confluences in Art; 2285, Medieval Art; 2290, Gothic Paris; 2310, Italian Art to 1500; 2320 or 2320W, Italian Renaissance Workshop; 2325, Great Masters of the Italian Renaissance; 2340W, The Art of Venice; 2342W, Venice: Between Land and Sea; 2360, Northern Renaissance Art; 3224, Greek Sculpture; 3226, Greek Vases and Society; 3228W, Gender and Sexuality in Greek Art; 3240W, Ancient Landscapes; 3252, Cities of the Roman East; 3256W, Roman Architecture and Power; 3272, Portraits in Late Antiquity; 3274, Art and Empire from Constantine to Justinian; 3320 or 3320W, Early Renaissance Florence; 3332, Raphael and the Renaissance; 3334 or 3334W, Michelangelo's Life and Works.

Ancient to Medieval Mediterranean Studies

CLASSICAL AND MEDITERRANEAN STUDIES: 1111, First-Year Writing Seminar; 1120, Greek Civilization; 1130, The Greek Myths; 1150, Roman Civilization; 1200W, Classics and Contemporary Culture; 2300, Ancient Science; 3000, Classical Tradition in America; 3010, The Ancient Origins of Religious Conflict in the Middle East; 3030, Death, Disease, and Health in the Ancient World; 3100, Women, Sexuality, and Family in Ancient Greece and Rome; 3110, Warfare in the Ancient Mediterranean; 3120, Humor, Ancient to Modern; 3150, Roman Law; 3160, Roman Law and Society; 3190 or 3190W, Augustan Rome; 3250 or 3250W, Jews and Greeks; 3260, Plato: Knowledge, Reality, Goodness; 3310, Culture of the Ancient Near East; 3320, The Amarna Age; 3333, Pandemics and Society in Historical Perspective; 3350, History of Ancient and Medieval Christianity; 3360, Early Christian Poetry; 3370, The History of Syriac Christianity; 3380, Desert Spirituality in Early Christianity; 3700, Uncovering Greek Religion; 3710, Maymester in Greece; 3720, Maymester in Rome; 3730, Maymester in Israel; 3850, Independent Study; 3881, Internship Readings and Research; 3890, Special Topics.

ENGLISH: 2318 or 2318W, World Literature, Classical; 3348 or 3348W, Milton.

HISTORY: 1345, The World of Rome; 2155, Muhammad and Early Islam; 2160, Medicine in Islam; 2170, Islam and the Crusades; 2180, Islamic Narratives, Narratives of Islam; 2190, The Last Empire of Islam; 2237, Democracy and Dictatorship: Ancient Politics; 2238, Crime and Criminal Law in Western Antiquity; 2240, Sex Law; 3210, Muslims, Christians, and Jews in Medieval Spain; 3215, The Other 1492; 3310W, Bible in the Greek World.

ITALIAN: 3240, Dante’s Divine Comedy; 3242, Dante in Historical Context; 3340, Famous Women from Antiquity to Renaissance; 3803, Maymester in Sicily.

JEWISH STUDIES: 1200, Classical Judaism: Jews in Antiquity; 1220, Jews in the Medieval World; 2150, Issues in Rabbinic Literature; 2620, Jews in Egypt; 3892, Topics in Ancient and Medieval Jewish History.

PHILOSOPHY: 2100, Ancient Philosophy; 2101, Hellenistic and Late Ancient Philosophy; 2102, Medieval Philosophy; 3005, Jewish Philosophy; 3006, Islamic Philosophy.

POLITICAL SCIENCE: 2202, Ancient Political Thought.

RELIGIOUS STUDIES: 1500, Introduction to Islam; 3225, Sexuality in the Hebrew Bible and the Ancient Near East; 3350, Christian-Jewish Relations in Medieval and Early Modern Europe; 3926, Ancient Goddesses; 4551 or 4551W, Mysticism in Islam; 4938, Marriage in the Ancient Near East and the Hebrew Bible.

Archaeological and Art-Historical Method and Theory

ANTHROPOLOGY: 2603, Comparative Writing Systems; 3261, Geographic Information Systems and Remote Sensing; 3260, Ceramic Analysis in Archaeology; 3262, Ethics in Anthropology, Archaeology, and Development; 3344, Genetic Anthropology Lab Techniques; 3372, Human Osteology; 3866, Archaeological Excavation; 3901, Problems in Anthropological Theory; 4345, Human Evolutionary Genetics.

CLASSICAL AND MEDITERRANEAN STUDIES: 3600, Seminar in Digital Humanities.

EARTH AND ENVIRONMENTAL SCIENCES: 1030, Oceanography; 1510, The Dynamic Earth: Introduction to Geological Sciences; 2510, Earth Systems through Time.

HISTORY OF ART AND ARCHITECTURE: 3810 or 3810W, Exhibiting Historical Art.

The Modern Mediterranean World

HISTORY: 1200, The Arab Spring; 3190, Religion, Culture, and Commerce: The World Perspective.

HISTORY OF ART AND ARCHITECTURE: 2780, History of Western Urbanism; 2782, Storied Places: History of Landscape Design. JEWISH STUDIES: 2600, Muslims and Jews.

RELIGIOUS STUDIES: 4552, Islam in the Modern World.

Climate and Environmental Studies

DIRECTOR David Hess (Sociology)

DIRECTOR OF UNDERGRADUATE STUDIES Zdravka Tzankava (Climate and Environmental Studies)

PROFESSORS Brooke Ackerly (Political Science), Teresa Goddu (English), Paul Stob (Communication Studies)
ASSOCIATE PROFESSORS Beth Conklin (Anthropology), Larisa DeSantis (Earth and Environmental Science), Jonathan Gilligan (Earth and Environmental Science), Jessica Oster (Earth and Environmental Science), Betsey Robinson (History of Art and Architecture), Anand Taneja (Religious Studies)
ASSISTANT PROFESSORS Patrick Greiner (Sociology), Ole Molvig (History), Tasha Rijke-Epstein (History), Matthew Zaragoza-Watkins (Economics)

ASSOCIATE PROFESSOR OF THE PRACTICE Zdravka Tzankova (Climate and Environmental Studies)
LECTURERS Joe Bandy (Sociology), Amanda Little (English), Dan Morgan (Earth and Environmental Science)
AFFILIATED FACULTY Mark Abkowitz (Civil and Environmental Engineering), Yolanda McDonald (Human and Organizational Development), Lori Troxel (Civil and Environmental Engineering)

COURSES OFFERED: ENVS

Human beings and their societies necessarily interact with and alter the Earth’s natural environment. Climate and Environmental Studies (CES) is home to two interdisciplinary undergraduate programs. Both the Climate Studies major (CLIM) and the Environmental and Sustainability Studies (ESS) minor allow the student to examine human interaction with the environment by concentrating on methods in the natural sciences, humanities, and social sciences with some experience in the other areas of study as well as environmental engineering and social engagement. The major, in particular, is designed to provide students with a strong foundation in the full range of disciplinary perspectives across the humanities, natural sciences, and social sciences.

Program of Concentration (I) in Climate Studies

The major requires 30 credit hours. Some of the courses require prerequisites, and students are responsible for meeting those prerequisites if they choose to satisfy the major with those classes.

1. Climate Studies introduction: ENVS 1101
2. Climate science foundation: EES 2110 or EES 3310
3. Core humanities course. One course in the humanities with climate-related focus: ASIA 2308, CSET 3320W, ENGL 3731, HART 3233, HIST 1530, RLST 3472
4. Core social sciences course. One course in the social sciences with climate-related focus: ANTH 1111, 2114, 2225; ECON 4050 Topics in Econometrics, when offered as Environmental Econ and Policy; PSCI 3266; SOC 3311, 3317, 3319
5. Core natural sciences course. One course in the natural sciences with a climate-related focus: EES 1081, 2510, 3333, 4440, 4650, 4680, 4750
6. Methods and practices courses. Two courses from the following: ANTH 2400, 3120, 3125, 3261; BME 2400; CE 3300; CMST 1501, 3800; CSET 2100, 3257; CS 1000; 2204, DHUM 1100, 1200; DS 1000, 1100, 2100, 3100; ECON 1500, 1510, 3035; HART 1740W, 2815; HIST 1515; HODC 3222; MATH 1010, 1100, 1201, 1301, 2810, 2821; PSY 2100, PSY-PC 2120, 2120; SOC 2100, 3002
7. Specialization electives: 9 credit hours. See the director of undergraduate studies for recommended concentration clusters. The nine additional credit hours may come from any of the courses listed above for #3, 4, and 5. They may also include the following additional courses: ANTH 2109, 2150, 2220W, 3138, 3202, 3333W, 4154; ASIA 2306, 2309W; BSCI 1511, 2238, 3231, 3233, EES 2150, 2309W, 2580, 3220, 3280, 3330, 4233, 4300, 4480; ECON 2170; ENVE 3610, 4305; ENVS 4101, 4101W; CE 2120, 3300, 4300; CSET 3240W, 3890; ENGL 2330W; 3240; HART 1740W, 2200, 3240W; HODC 3650; HODH 3650; HODI 3270; SOC 1030, 3314, 3312, 3316, 3318, 3319, 3321; PSCI 3253, 3264W, 3265; UNIV 3315/5315

Program II: Honors Program in Climate Studies

The Honors Track offers majors in Climate Studies the opportunity to pursue intensive work through an independent research project. Students interested in pursuing the

Honors Track should contact the director of undergraduate studies for more information. To be considered for the Honors Track in Climate Studies, a student must have a minimum cumulative GPA of 3.4 and a minimum GPA of 3.6 for courses that count toward the major. Students should express interest to the director of undergraduate studies before March 1 of their junior year. Students who are recommended for the program by the director of undergraduate studies will typically begin the program by taking ENVS 4101W during the fall term of the senior year.

The Honors Track requires the following:

1. Successful completion of requirements 1-7 in Program I, for a total of 30 credit hours. Requirements 1, 2, and 6 must be completed prior to beginning the honors courses.

2. Successful completion of at least two semesters of honors coursework (6 credit hours) for the Honors Track. Students take ENVS 4101W or ENVS 4981 (Honors Research) during the first semester of their senior year, when they develop the literature review and research plan. The first semester of honors coursework counts as part of requirement 7 of Program I and can be used to fulfill the requirements for Program I should students not go on to finish honors during the second semester of honors coursework. After completing the first semester of honors coursework, students then take a minimum of 3 and maximum of 6 credit hours of 4981 (Honors Research) during the second semester, which is in addition to the 30 credits required to complete the standard major. Thus students must take a minimum of 6 credit hours of honors coursework and may take up to 9 credit hours.

3. In order to earn honors in Climate Studies, students must successfully complete, defend, and perform requested revisions on the honors thesis before deadlines for graduation. Successful defense of the completed thesis is through an oral presentation and examination by the thesis adviser and a designated faculty reader near the end of the student's final semester. Revisions must be completed and the thesis submitted no later than the last day of undergraduate classes.

4. Students meeting these requirements receive honors or highest honors in Climate Studies, depending on the quality of the thesis and performance on the defense. Successful candidates will be recognized in the commencement program and receive a Vanderbilt diploma that records honors or highest honors in Climate Studies.

Minor in Environmental and Sustainability Studies

Students who want to minor in environmental and sustainability studies must take a minimum of six courses (18 credit hours total) chosen from the courses listed below; additional relevant courses may be counted with approval of the director of the program. Courses must be distributed as follows: (A) one Natural Science- and Technology-Intensive course; (B) one Humanities course; (C) one Social-Behavioral Sciences and Policy-Intensive course; (D) two additional courses from B and/or C; and (E) a capstone course. No more than two courses may be at the 1000 level. In addition, no more than 3 credit hours may be counted simultaneously toward both the environmental and sustainability studies minor and any other major or minor. Topics courses may count toward the minor with approval of the director.

A. *Natural Science- and Technology-Intensive Courses:* BSCI 1103, BSCI 2238, BSCI 2238L, BSCI 3233, EES 1030, EES 1070, EES 1080, EES 1081, EES 1111*, EES 1140, EES 1510, EES 1510L, EES 2110, EES 2150, EES 2510, EES 3220, EES 3220W, EES 3310, EES 3333, EES 4300, EES 4650, EES 4680, EES 4750, EES 4760, EES 4820, ENVE 3610, ENVE 4615, ENVE 4700, ES 1115*
B. *Humanities Courses:* AMER 1111*, AMER 4000*, AMER 4100*, CSET 3320W, ENGL 2316/2316W*, ENGL 2330, ENGL 3720/3720W*, ENGL 3730, ENGL 3731, ENGL 3898/3898W*, GSS (formerly WGS) 2268, GSS (formerly WGS) 2270, HART 2150, HART 2662, HART 3240W, HART 2782, HART 3790, HIST 1520, HIST 1525, HIST 1530, HIST 2108, HIST 2108W, HIST 2139, HIST 2413, HIST 2413W, PHIL 1111*, PHIL 3611, PHIL 3612, RLST 2472, RLST 3472, RLST 3921
C. *Social-Behavioral Sciences and Policy Intensive Courses:* ANTH 1111*, ANTH 2109, ANTH 2114, ANTH 2150, ANTH 2220, ANTH 2220W, ANTH 2225, ANTH 2227, ANTH 3138, ANTH 3261, ANTH 4154, ECON 2170, GSS (formerly WGS) 1111*, HOD 3270, PSCI 3266, PSY 1111*, SOC 1020/1020W*, SOC 1030, SOC 1111*, SOC 3311, SOC 3312, SOC 3313, SOC 3314, SOC 3315, SOC 3316, SOC 3317, SOC 3318, SOC 3319, SOC 3321
D. Two additional courses from lists B and/or C above.
E. *Capstone: ENVS 4101 or ENVS 4101W, for minors only*

*Special topic and First-Year Writing Seminar sections require the approval of the director of the environmental and sustainability studies minor to count in the minor.

College of Arts and Science Administration and Faculty

JOHN G. GEER, Ph.D., Dean

BONNIE J. DOW, Ph.D., Dean of Academic Initiatives

KAMAL SAGGI, Ph.D., Dean of Faculty

DAVID W. WRIGHT, Ph.D., Dean of Graduate Education and Research

ROGER E. MOORE, Ph.D., Senior Associate Dean and Interim Director of Undergraduate Education

DANIEL MORGAN, Ph.D., Associate Dean of Undergraduate Education

JONATHAN PETTY, B.A., Associate Dean of Development and Alumni Relations

ANDREA HEARN, Ph.D., Assistant Dean of Undergraduate Education

CARRIE RUSSELL, J.D., Ph.D., Assistant Dean of Undergraduate Education; Director of MLAS and Pre-Law Advising

PATRICK J. RETTON II, B.S., Chief Business Officer

HOLLIS CALHOUN, M.P.A., Executive Director of Strategic Affairs and Communications

MELISSA WOCHER, B.A., Administrative Director

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BRIAN BACHMANN, Stevenson Chair in Chemistry

HOUSTON A. BAKER, JR., University Distinguished Professor in English

LARRY M. BARTELS, May Werthan Shayne Chair in Public Policy and Social Science

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RANDOLPH BLAKE, Centennial Professor in Psychology

ERIC W. BOND, Joe L. Roby Chair in Economics

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MARIA CAMPOS-PONS, Cornelius Vanderbilt Chair in Art

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COLIN DAYAN, Robert Penn Warren Chair in the Humanities

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DENNIS C. DICKERSON, Reverend James M. Lawson, Jr., Chair in History

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JANE G. LANDERS, Gertrude Conaway Vanderbilt Chair in History

DAVID E. LEWIS, Rebecca Webb Wilson University Chair

TONG LI, Gertrude Conaway Vanderbilt Chair in Economics

CRAIG W. LINDSLEY, University Professor in Chemistry

WILLIAM LUIS, Gertrude Conaway Vanderbilt Chair in Spanish

LAWRENCE J. MARNETT, University Professor of Biochemistry, Chemistry, and Pharmacology; Mary Geddes Stahlman Chair

RENÉ MAROIS, Winkelreid Family Chair

HOLLY McCAMMON, Cornelius Vanderbilt Chair in Sociology

RALPH MCKENZIE, Distinguished Professor in Mathematics

JOHN MCLEAN, Stevenson Chair in Chemistry

DOUGLAS G. MCMAHON, Stevenson Chair in Biological Sciences

JON MEACHAM, Carolyn T. and Robert M. Rogers Chair

JONATHAN METZL, Frederick B. Rentschler II Chair in Sociology and Medicine, Health, and Society

LORRIE MOORE, Gertrude Conaway Vanderbilt Chair in English

KEVIN D. MURPHY, Andrew W. Mellon Chair in the Humanities

DANA NELSON, Gertrude Conaway Vanderbilt Chair in English

MOSES OCHONU, Cornelius Vanderbilt Chair in History

KELLY OLIVER, W. Alton Jones Chair in Philosophy

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BUNMI OLATUNJI, Gertrude Conaway Vanderbilt Chair in the Social and Natural Sciences

LUCIUS OUTLAW, W. Alton Jones Chair

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SOHEE PARK, Gertrude Conaway Vanderbilt Chair in Psychology

JAMES G. PATTON, Stevenson Chair in Biological Sciences

MATTIAS K. POLBORN, E. Bronson Ingram Chair in Economics

ANTONIS ROKAS, Cornelius Vanderbilt Chair in Biological Sciences

SANDRA J. ROSENTHAL, Jack and Pamela Egan Chair in Chemistry

PETER L. ROUSSEAU, Gertrude Conaway Vanderbilt Chair in Economics

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KAMAL SAGGI, Frances and John Downing Family Chair

MARK SAPIR, Centennial Professor in Mathematics

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THOMAS A. SCHWARTZ, Distinguished Professor of History

TRACY D. SHARPLEY-WHITING, Gertrude Conaway Vanderbilt Chair in African American and Diaspora Studies and French

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HELMUT W. SMITH, Martha Rivers Ingram Chair in History

KEIVAN G. STASSUN, Stevenson Chair in Physics

GARY ALLEN SULIKOWSKI, Stevenson Chair in Chemistry

ROBERT B. TALISSE, W. Alton Jones Chair in Philosophy

PAUL C. TAYLOR, W. Alton Jones Chair

FRANK TONG, Centennial Chair in Psychology

BENIGNO TRIGO, Gertrude Conaway Vanderbilt Chair in the Humanities

HOLLY A. TUCKER, Mellon Foundation Chair

DANIEL H. USNER, JR., Holland M. McTyeire Chair in History

JULIA VELKOVSKA, Cornelius Vanderbilt Chair

W. KIP VISCUSI, University Distinguished Professor of Law, Economics, and Management

DAVID J. WASSERSTEIN, Eugene Greener, Jr., Chair in Jewish Studies

JOHN A. WEYMARK, Gertrude Conaway Vanderbilt Chair in Economics

JOHN P. WIKSWO, JR., Gordon A. Cain University Chair in Physics; A. B. Learned Chair in Living State Physics

RHONDA WILLIAMS, John L. Seigenthaler Jr. Chair in American History

ALAN WISEMAN, Cornelius Vanderbilt Chair in Political Science

DAVID W. WRIGHT, Stevenson Chair in Chemistry

EDWARD WRIGHT-RIOS, Mellon Foundation Chair in the Humanities

ELIZABETH ZECHMEISTER, Cornelius Vanderbilt Chair in Political Science

MEL ZIEGLER, Paul E. Shwab Chair in Fine Arts

LAURENCE J. ZWIEBEL, Cornelius Vanderbilt Chair in Biological Sciences

Faculty Council

, Chair. , Secretary. *Ex officio:* Dean of the College.

DIVISIONAL MEMBERS.

Terms expiring May 2021:

Terms expiring May 2022:

AT-LARGE MEMBERS.

Terms expiring May 2021:

Terms expiring May 2022:

Rosters for the following Arts and Science committees are available at as.vanderbilt.edu/faculty/committees.php.

ADMINISTRATIVE COMMITTEE ADMISSIONS COMMITTEE

AXLE IMPLEMENTATION COMMITTEE

COMMITTEE ON ACADEMIC STANDARDS AND PROCEDURES

COMMITTEE ON EDUCATIONAL PROGRAMS

COMMITTEE ON GRADUATE EDUCATION

COMMITTEE ON HEALTH RELATED PROFESSIONS

COMMITTEE ON INDIVIDUAL PROGRAMS

COMMITTEE ON UNDERGRADUATE INTERDISCIPLINARY STUDIES

CURRICULUM COMMITTEE

SECOND LANGUAGE STUDY COMMITTEE

STUDENT-FACULTY RELATIONS COMMITTEE

STUDY ABROAD COMMITTEE

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

College of Arts and Science Courses

Explanation of Course Numbers and Symbols 1000-level courses are introductory courses primarily taken by freshmen and sophomores.

2000- and higher-level courses are intermediate- or advanced-level courses which typically require some prerequisite. They are primarily intended for sophomores, juniors, and seniors.

Hours are semester hours—e.g., a three-hour course carries credit of three semester hours.

Bracketed figures indicate semester hours credit, e.g., [3].

First-Year Writing Seminars are numbered 1111.

W symbols used in course numbers designate courses in the College of Arts and Science that will meet the AXLE writing requirement.

The AXLE designation in parentheses in each course description indicates which AXLE requirement pertains. For example, (HCA) indicates credit for Humanities and the Creative Arts in AXLE. The designation (No AXLE credit) indicates the course does not satisfy an AXLE degree requirement.

The university reserves the right to change the arrangement or content of courses, to change the texts and other materials used, or to cancel any course on the basis of insufficient enrollment or for any other reason.

It is the responsibility of each student to avoid duplication, in whole or in part, of the content of any courses offered toward the degree. Such duplication may result in withdrawal of credit.

Astronomy

Biochemistry & Chemical Biology

Biological Sciences

Business Studies

Catalan

Chemistry

Chinese

Cinema and Media Arts

Classical Hebrew

Classics

Communication Studies

Communication of Science and Technology

Digital Humanities

Earth and Environmental Sciences

Economics

English

Environmental and Sustainability Studies

European Studies

French

Gender and Sexuality Studies (formerly Women's and Gender Studies)

German

Greek

Haitian Creole Language

Hebrew

Hindi Urdu Language Instruction

History

History of Art

Honors

Humanities

Interdisciplinary Studies

Italian

Japanese

Jewish Studies

K'iche' - Mayan Language

Korean

Latin

Latin American Studies

Latino and Latina Studies

Mathematics

Medicine, Health, and Society

Neuroscience

Philosophy

Physics

Political Science

Portuguese

Psychology (AS)

Public Policy Studies

Religious Studies

Robert Penn Warren Center

Russian

Sanskrit

Sociology

Spanish

Theatre

Tibetan Language

College of Arts and Science Programs of Study

African American and Diaspora Studies

American Studies

Anthropology

Arabic

Art

Asian Studies

Biochemistry and Chemical Biology

Biological Sciences

Business Studies

Chemistry

Cinema and Media Arts

Classical and Mediterranean Studies

Communication of Science and Technology

Communication Studies

Earth and Environmental Sciences

Economics

Economics and History

English

Environmental and Sustainability Studies

European Studies

French and Italian

Gender and Sexuality Studies

German, Russian, and East European Studies

Hebrew

History

History of Art and Architecture

Honors

Interdisciplinary Studies

Jewish Studies

Latin American Studies

Latino and Latina Studies

Mathematics

Medicine, Health, and Society

Nanoscience and Nanotechnology

Neuroscience

Philosophy

Physics and Astronomy

Political Science

Psychology

Public Policy Studies

Religious Studies

Scientific Computing

Sociology

Spanish and Portuguese

Teacher Education

Theatre

Communicating with Vanderbilt

Admissions

First-year and transfer

Dean Douglas Christiansen

Office of Undergraduate Admissions

2305 West End Avenue

Nashville, Tennessee 37203

(615) 322-2561, (800) 288-0432

Division of Unclassified Studies

Division of Unclassified Studies

Office of the University Registrar

110 21st Avenue South, Suite 110

Nashville, TN 37203

(615) 343-4306

Financial aid and scholarships

Brent Tener, Director

Office of Student Financial Aid and Scholarships

2309 West End Avenue

Nashville, Tennessee 37203

(615) 322-3591, (800) 288-0204

Teacher licensure

Amanda K. Van Doorn, Director of Teacher Licensure

213 Peabody Administration Building

1212 21st Avenue South

Nashville, Tennessee 37203

(615) 322-8270

Housing

Office of Housing and Residential Education

4100 Branscomb Quad

Vanderbilt Place at 24th Avenue South

Nashville, Tennessee 37212

(615) 322-2591

Academic and faculty matters

College of Arts and Science

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404 Buttrick Hall

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(615) 322-2851

Blair School of Music
Lorenzo F. Candelaria, Dean

2400 Blakemore Avenue

Nashville, Tennessee 37212

(615) 322-7651

School of Engineering

Philippe M. Fauchet, Dean

5332 Stevenson Center

Nashville, Tennessee 37235

(615) 322-0720

Peabody College

Camilla Persson Benbow, Dean

202 Peabody Administration Building

1212 21st Avenue South

Nashville, Tennessee 37212

(615) 322-8407

Army ROTC

Army Officer Education Program

1114 19th Avenue South

Nashville, Tennessee 37212

(615) 322-8550, (800) 288-7682

Naval ROTC

Naval Officer Education Program

1114 19th Avenue South

Nashville, Tennessee 37212

(615) 322-2671, (800) 288-0118

Communication of Science and Technology

INTERIM DIRECTOR David Wright

DIRECTOR OF UNDERGRADUATE STUDIES Michelle (Shellie) Richards

PROFESSORS Michael Bess (History), Bonnie Dow (Communication Studies), Jay Clayton (English), Jennifer M. Fay (Cinema and Media Arts, English), David Hess (Sociology, Climate and Environmental Studies), M. Shane Hutson (Physics and Astronomy), Sarah Igo (History), Lutz Koepnick (German, Cinema and Media Arts), Robert J. Scherrer (Physics and Astronomy), Mark Schoenfield (English), Paul H. Stob (Communication Studies), David W. Wright (Chemistry)

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ADJUNCT PROFESSOR Kevin Johnson (Biomedical Informatics)

ASSOCIATE PROFESSORS Jeffrey A. Bennett (Communication Studies), Douglas H. Fisher (Computer Science and Computer Engineering), Suzana Herculano-Houzel (Psychology), Laura Stark (Medicine, Health, and Society)

ASSISTANT PROFESSORS Karan Jani (Physics & Astronomy), Ole Molvig (History), Kendra H. Oliver (Pharmacology)

RESEARCH ASSISTANT PROFESSOR Michelle (Shellie) Richards

ASSISTANT PROFESSOR OF THE PRACTICE Paul Durst

PRINCIPAL SENIOR LECTURER Daniel Morgan (Earth and Environmental Sciences)

SENIOR LECTURERS Dusan Danilovic (Physics and Astronomy), Ashleigh Maxcey (Psychology)

LECTURER Stephanie Castillo

WRITER IN RESIDENCE Amanda Little, Stephen K. Ornes

COURSES OFFERED: CSET

The Program in Communication of Science and Technology (CSET) sits at the intersection of the sciences and the humanities, and it builds on the vast amount of effort at Vanderbilt devoted to interdisciplinary work that spans the natural sciences, engineering, the social sciences, and the humanities. CSET draws on both the scientific communities (natural sciences, social sciences, engineering, medicine) and the creative communities (public speaking, writing, digital media production) across multiple colleges at Vanderbilt.

CSET is designed for students who have an interest in science and technology and also are interested in communicating science and technology to both peer-professional audiences and to the larger world. CSET is ideal as a second major for students pursuing a first major in one of the natural sciences, any of several of the social sciences, engineering, the Science, Medicine and Technology concentration in History, and the Creative Writing track in English. In the twenty-first century scientists must be able to communicate their work and their ideas to their professional peers, to nonspecialists who review grant proposals, and to lay audiences who ultimately fund, support, and benefit from the discoveries made in laboratories around the world. In return, the scientific community needs support from professional writers, journalists, technical writing specialists, public speakers, film and video writers and producers, and bloggers in communicating modern science, technology, and medicine to lay audiences.

Program of Concentration in Communication of Science and Technology

Track 1: Standard track [at least 42 credit hours]

1. Core [9 credit hours]

   a. CSET 1500: Communicating Science [3]
   b. CSET 2100: Science Communication Tools and Techniques [3]
   c. CSET 2500: Science for Everyone

2. Telling Scientific Stories: [6 credit hours, of which at least 3 credit hours must be from category a.]

a. Writing Skills

i. blogging (CSET 3215W, ENGL 3215, ENGL 3215W)

ii. technical writing (CSET 3090, 3100, 3200W, BME 4951, CE 4950, ChBE 4951W, CHEM 3135W, ENGM 2210, ME 4951, ES 2100W, PSCI 2256, 3266)

iii. investigative journalism (CSET 3320W, ENGL 3896, 3896W)

iv. science writing (ANTH 3150W, CSET 3240W, 3241W, 3281W, 3320W, ENVS 4101W, ENGL 3440W, 3720, 3720W, 3730, 3730W)

v. climate studies writing (ENVS 4101W, SOC 3318)

vi. non-fiction writing (ENGL 3210, 3220)

vii. fiction writing (ENGL 3230, 3240)

viii. science fiction writing (ENGL 3728, 3728W, RUSS 2273W)

ix. script writing (CMA 2500W, 2510W, 2600W, THTR 2311W, 3311)

x. history of science writing (All three-credit-hour courses approved for Program G. Science, Medicine, and Technology in History)

xi. science-related philosophy (PHIL 3601, 3604, 3608, 3611, 3612, 3616, 3657)

xii. science-related religious studies (RLST 2811, 3472, 3921, 3941)

xiii. HONS 1830W and 1850W courses

xiv. Other: CMST 3250W, EES 2309W

xv. CSET 3891 (Special topics in Writing Skills)

b. Science and Narrative

i. virtual reality (CSET 3257, CS 4249, CMA 1820W, 3257),

ii. podcasting (CSET 2200),

iii. telling stories with data (CSET 3410),

iv. film making (CMA 1500, 2240, 2250, 2260, 2270, 3891),

v. CSET 3892 (Special topics in Science and Narrative).

3. Bridging the Sciences and Humanities [9 credit hours]

Any three courses from the approved list, found below, of which at least one course must be from the CSET offerings. These courses bridge the sciences and the humanities and include but are not limited to courses covering the history of science, the history of medicine, climate studies, MHS, the philosophy of science, and ethics and science.

4. Natural Science and/or Engineering Depth [15 credit hours]

A combination of any five three-credit-hour courses that are identified as MNS courses (if in A&S) or School of Engineering courses. Students may count any one statistics course toward this requirement from the following list: BME 2400, 3400, BSCI 3270, CE 3300, ChBE 3900W, ECON 1500, 1501, MATH 1011, 2810, 2820, PSY 2100, PSY-PC 2110, 2120, SOC 2100. Students may count any one three-credit-hour Data Science course toward this

requirement. Students may count the three one-credit hour courses ES 1401, 1402, and 1403 as equivalent to a single three-credit hour course if they earn credit for all three courses. Except for the listed statistics courses, MATH and PHIL courses identified as MNS for purposes of AXLE do not count toward this requirement. CSET 2500 counts toward the CSET Core and not this requirement. One-credit laboratory classes, alone or in combination, do not count for this requirement.

5. Electives [3 credit hours] chosen from any or any combination of:

a. Directed Study (CSET 3840)
b. Project in Science Writing and Communicating (CSET 3841)
c. Internships (CSET 3880, 3881)
d. Research (research hours can include appropriate credit hours from another department or program; these hours must be approved by the student's CSET adviser)
e. Honors in CSET (CSET 4998)
f. Qualifying Telling Scientific Stories or Bridging the Sciences and Humanities or Natural Science and/or Engineering Depth courses
g. One additional 2100-level or higher W course from any department or program in A&S.

Additional notes:

- Students in the College of Arts and Science must count at least 24 credit hours for CSET that are not also used to fulfill any program requirements for any other major or minor in the College of Arts and Science.
- A course can only be used once to fulfill a single CSET requirement, even if it is eligible under more than one CSET requirement (e.g. ENGM 2210 can count for requirement #4 or #7, but not both).
- A student may count no more than 3 total credit hours toward any and all requirements of the CSET major from courses in the following list: BME 4951, ChBE 4951W, CE 4950, CE 4951, ENGM 2210, and ES 2100W.

Track 2. CSET plus an approved STEM major* or minor**

At least 27 credit hours, with verification of 15 additional hours of Natural Sciences or Engineering classes.

Any student with an approved STEM major or registered in the School of Engineering must complete requirements 1, 2, 3, and 5 of the Standard Track.

Requirement 4 of the Standard Track will be waived by the URO upon verification of completion of 15 additional credit hours of courses that fulfill this requirement and also count toward the student's natural science major or degree program in the School of Engineering.

* Approved STEM majors include Anthropology; Biochemistry & Chemical Biology; Biological Sciences; Chemistry; Earth & Environmental Sciences; Ecology, Evolution & Organismal Biology; Economics; Environmental Sociology; Molecular & Cellular Biology; Neuroscience; Physics; Psychology; Cognitive Studies (Peabody College); or any major offered by the School of Engineering. Additional natural or social science majors may be added at any time, upon recommendation of the CSET Steering Committee.

** Approved STEM minors include Anthropology; Astronomy; Biological Sciences; Chemistry; Earth & Environmental Sciences; Environmental Sociology; Neuroscience; Physics; Psychology; Cognitive Studies (Peabody College); Engineering Management, Materials Science and Engineering, Computer Science, Computer Engineering, Digital Fabrication, Electrical and Computer Engineering, Environmental Engineering, Energy and Environmental Systems, Nanoscience and Nanotechnology, Scientific Computing.

Track 3: CSET plus Program G History [at least 27 credit hours]

Any student with a verified major in the history of science (Program G History) must complete requirements 1, 4, and 5 of the Standard Track.

Requirements 2 and 3 of the Standard Track will be waived by the URO upon verification of completion of 15 additional credit hours of courses that fulfill these requirements and that also count toward the student's Program G History major.

Track 4: CSET plus MHS [at least 30 credit hours]

Any student with a major in MHS must complete requirements 1, 2, and 4 of the Standard Track.

Requirements 3 and 5 of the Standard Track will be waived by the URO upon verification of completion of 12 additional credit hours of courses that fulfill these requirements and that also count toward the student's MHS major.

Track 5: CSET plus an approved major in the Humanities or Social Sciences^ [at least 33 credit hours]

Any student with an approved major in the humanities or social sciences must complete requirements 1, 3, and 4 of the Standard Track.

Requirements 2 and 5 of the Standard Track will be waived by the URO upon verification of completion of 9 additional credit hours of courses that fulfill these requirements and that also count toward the student's approved humanities or social science major.

^Approved humanities and social science majors include Cinema and Media Arts, Climate Studies, English, History, Philosophy, Political Science, and Religious Studies. Additional humanities and social science majors offered and approved by the faculty in the College of Arts & Science may be added at any time, upon recommendation of the CSET Steering Committee.

Approved Courses:

List of Courses approved for the Bridging the Sciences and Humanities requirement:

These courses bridge the sciences and the humanities and include but are not limited to courses covering the history of science, the history of medicine, climate studies, MHS, the philosophy of science, and ethics and science.

- ANTH 2109, Food Politics in America; 2113W, Food, Identity, and Culture; 2114, Above and Below the Surface: The Caribbean between Climate Change and Tourism; 2160 or 2160W, Creating Community; 2220W, Human Landscapes; 2242 or 2242W, The Archaeology of Ancient Maya Civilization; 3141, Anthropology of Healing; 3143, Medical Anthropology; 3150W, Cognitive Anthropology; 3243 or 3243W, Ancient Maya Gods and Rulers; 3343, Biology and Culture of Race; 3345, Genetics in Society; 3347, Bioethics in Anthropology; 3622W, Classic Maya Language and Hieroglyphs; 4373, Health and Disease in Ancient Populations.
- ASIA 2630, Chinese Medicine.
- ASTR 2130, The Trial of Galileo and Its Background.
- CLAS 3030, Death, Disease, and Health in the Ancient World; 3730: The Roman to Medieval Near East: Caesarea Excavations, Israel.
- CMST 2800, Rhetoric and Civic Life; 2850, Science, Rhetoric, and Public Controversy; 3250W, Ethics in

Science and Technology Communication; 3730 or 3730W, Communication, Culture, and Consciousness; 3740, Rhetoric of Medicine and Health; 3750, Rhetoric of the Body.
- CS 1151, Computers and Ethics.
- CSET 2130, Trial of Galileo and its Background; 2850, Science, Rhetoric, and Public Controversy; 3090, Introduction to Science and Technology Policy Analysis; 3100, Science Policy Bootcamp, from Concept to Conclusion; 3130, Rhetoric of Technoscience; 3240W, Pop Science: The Art and Impact of Popular Science Writing; 3241W, Ethical Questions in Communication at First Contact; 3250W, Ethics in Science and Technology Communication; 3261, Immigrant Scientists; 3281W, Scientists and the State; 3320W, Environmental Journalism; 3410, Telling Stories with Data; 3983: Special Topics in Bridging the Sciences and Humanities.
- EES 2114: Above and Below the Surface: The Caribbean between Climate Change and Tourism; 2150, Science, Risk, and Policy; 2309W, Mountains to the Sea: Perspectives on Society, Politics, and the Environment, 3333: Climate and Society: Drowning Cities.
- ECON 2170, Environmental Economics; 2350, Health Care Policy.
- ENGL 3720 or 3720W, Science Fiction; 3730 or 3730W, Literature and the Environment; 3896 or 3896W, Special Topics in Investigative Writing in America.
- ENVS: all three-credit-hour courses.
- GSS 2240, Introduction to Women's Health; 2268, Gender, Race, Justice, and the Environment; 2270, Ecofeminism: Theory, Politics, and Action.
- HART 2815, Digital Heritage: Methods and Practice; 3233, Climate and Society: Drowning Cities.
- All three-credit-hour courses approved for Program G. Science, Medicine, and Technology in History,
- MATH 3000, History of Mathematics.
- MHS: All 1900-level or higher, three-credit-hour courses.
- PHIL 3601, Metaphysics; 3604, Gender and Sexuality; 3605, Contemporary Ethical Theory; 3606, Moral Problems; 3606W, Moral Problems; 3608, Ethics and Medicine; 3611, Environmental Philosophy; 3612, Ethics and Animals; 3616, Philosophy and the Natural Sciences.
- PSCI 2255, Public Policy Problems; 2256, Politics of Public Policy; 3253, Ethics and Public Policy; 3266, Climate Change Justice; 3268, American Health Policy.
- PSY 3605, Industrial and Organizational Psychology; 3635, Health Psychology; 3705, Human Sexuality.
- RLST 2811, Natural Science and the Religious Life; 3472, Religion and Climate Change; 3921, Ethics and Ecology; 3941, Religion, Science, and Evolution.
- RUSS 2273, Russian Science Fiction; RUSS 2273W, Russian Science Fiction.
- SCED: All three-credit-hour courses.
- PPS: All three-credit-hour courses approved for the Environmental, Resource, and Energy Policy Concentration in Public Policy Studies.
- PPS: All three-credit-hour courses approved for the Science, Technology, and Innovation Policy in Public Policy Studies.
- SOC: All three-credit-hour courses approved for the Environmental Sociology Core in Sociology.

Honors Program

Honors in CSET is a selective program of individual undergraduate work, supervised by a faculty adviser. Honors candidates propose, construct, and complete a project (written, visual, aural, digital, or a combination) that demonstrates the ability to communicate science, in depth, to a nonexpert audience.

Requirements for Admission to Honors in CSET

To be admitted to the Honors Program in CSET, a student must

- be a CSET major;
- have completed at least 21 credit hours of work that counts toward the CSET major;
- have a cumulative GPA of at least 3.0;
- have a GPA of at least 3.40 in all courses that count toward the CSET major.
- secure a faculty adviser and submit a proposal of the planned Honors project to the Director.

Requirements for Completion of Honors in CSET

To earn Honors or Highest Honors in CSET, a student must

- complete the requirements of the CSET major;
- complete at least 6 credit hours of work in any combination of CSET 3840, 3841, and 4998, of which at

least 3 credit hours must be in CSET 4998;
- present a written and oral defense of the CSET 4998 project before a faculty examination committee;
- have a cumulative GPA of at least 3.0;
- have a GPA of at least 3.40 in all courses that count toward the CSET major.

Course of Study for Honors in CSET

Interested students may apply in the fall or spring of their junior year or the fall of the senior year. The application includes a one- to two-page proposal of the planned Honors project and the signature of the faculty member who will be the project adviser. The faculty adviser does not need to be a member of the CSET faculty.

An Honors candidate must pass an oral examination of the Honors project no later than the final week of classes in the students final semester. The examination committee is composed of the Honors project supervisor and two additional faculty members; at least one member of the examination committee must be a faculty member affiliated with the CSET program. The oral examination is public and should take approximately one hour, including time for questions from members of the committee. The faculty examination committee will determine by majority vote whether the student has earned Honors and whether said student should receive Honors or, for exceptional achievement, Highest Honors. Highest Honors is reserved for students whose projects are of dissemination quality and whose oral examinations are completed at the highest level.

Minor in Communication of Science and Technology

The minor in Communication of Science and Technology consists of six courses, totaling a minimum of 18 credit hours, distributed as follows:

1. CSET Core (requirement #1 of the Standard Track);
2. One Telling Scientific Stories course (as defined in requirement #2 of the Standard Track);
3. One Bridging the Sciences and Humanities course (as defined in requirement #3 of the Standard Track);
4. One three-credit-hour natural science course (as defined in requirement #4 of the Standard Track)

Additional notes for the minor in CSET:

- Students in the College of Arts and Science must count at least 15 credit hours for the minor in CSET that are not also used to fulfill any program requirements for any other major or minor in the College of Arts and Science.
- A course can be used only once to fulfill a single CSET requirement, even if it is eligible under more than one CSET requirement.
- Requirement #4 cannot be fulfilled with an engineering course.

Communication Studies

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DIRECTOR OF UNDERGRADUATE STUDIES Isaac West

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PROFESSORS Jeffrey A. Bennett, Bonnie J. Dow, John M. Sloop, Paul H. Stob

ASSOCIATE PROFESSORS Vanessa B. Beasley, Claire Sisco King, Isaac West

ASSISTANT PROFESSOR Bohyeong Kim

PRINCIPAL SENIOR LECTURER M. L. Sandoz (Director of Forensics)

SENIOR LECTURERS Neil Butt, John P. Koch (Director of Debate), Courtney C. Travers, Dustin A. Wood

COURSES OFFERED: CMST

The Department of Communication Studies offers a major and a minor that include courses in the following areas: historical and theoretical foundations of communication study, argumentation and oral advocacy, the historical and critical study of public discourse and deliberation, and the analysis of media and culture.

The Vanderbilt University Debate Team participates in international, national, and regional competitions.

Program of Concentration in Communication Studies

Communication studies explores purposive human communication. The Department of Communication Studies is particularly devoted to an understanding of public discourse in the broadest sense, with an emphasis on the role of persuasion in civil society. To that end the subjects of study range from political discourse to commercial advertisement, from the history of rhetoric to the impact of mass media, from criticism of public oratory to issues of freedom of speech. The department offers courses involving practice, criticism, and theoretical analysis.

Education in these areas has traditionally produced citizen advocates who enter public life in business, law, journalism, and communication.

A major in communication studies requires 30 credit hours of course work. The requirements and options for the major are as follows:

1. Two courses (6 credit hours) in Foundations: 1002 and 1500.
2. One course (3 credit hours) in Argumentation and Advocacy: 2100, 2110, 2120.
3. Three courses (9 credit hours) in Public Discourse and Deliberation: 2750, 2800, 2850, 3000, 3100, 3110, 3120, 3140, 3150, 3200, 3600, 3700; one of which must be 2800, 3000, or 3600.
4. Three courses (9 credit hours) in Culture, Theory, and Critique: 2432, 2950, 3620, 3620W, 3710, 3720, 3730, 3730W, 3740, 3750, 3760, 3800; One of which must be 2950, 3620/3620W, or 3730/3730W.
5. One elective course (3 credit hours), selected from the courses listed in requirements 2 through 4, which has not been counted toward those requirements.

1111, 3840, 3850, 3890, 4940, and 4941 may be counted toward the major in the category corresponding to the topic of the course, with the permission of the director of undergraduate studies.

Minor in Communication Studies

A minor in communication studies requires completion of 18 credit hours from the following requirements and options:

1. Two courses (6 credit hours) in Foundations: 1002 and 1500.
2. One course (3 credit hours) in Argumentation and Advocacy: 2100, 2110, 2120.
3. Three courses (9 credit hours) from requirements 3 and 4 in the major.

1111, 3840, 3850, 3890, 4940, and 4941 may not be counted toward the minor.

Computer Engineering

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ASSOCIATE CHAIR Gabor Karsai

DIRECTOR OF UNDERGRADUATE STUDIES W. Timothy Holman

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PROFESSORS Bharat L. Bhuva, Gautam Biswas, Robert E. Bodenheimer, Jr., Benoit M. Dawant, Aniruddha S. Gokhale, Gábor Karsai, Xenofon D. Koutsoukos, Bennett A. Landman, Akos Ledeczi, Lloyd W. Massengill, Padma Raghavan, Nilanjan Sarkar, Douglas C. Schmidt, Ronald D. Schrimpf, Janos Sztipanovits

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ASSOCIATE PROFESSOR OF THE PRACTICE Graham S. Hemingway

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ASSISTANT PROFESSORS Matthew Berger, Catie Chang, Yuankai Huo, Taylor Johnson, Maithilee Kunda, Jack H. Noble, Ipek Oguz

ADJUNCT ASSISTANT PROFESSOR Andrew Sternberg

COURSES OFFERED: EECE

The program in computer engineering deals with the organization, design, and application of digital processing systems as general-purpose computers or as embedded systems, i.e., components of information processing, control, and communication systems. The program provides a strong engineering background centered on digital technology combined with an understanding of the principles and techniques of computer science. Computer engineering is design-oriented. The basic principles of engineering and computer science are applied to the task at hand, which may be the design of a digital processor, processor peripheral, or a complete digital processor-based system.

Whatever the undertaking, the comprehensive academic training in this program enables engineers to evaluate the impact of their decisions, whether working with hardware, software, or the interface between the two.

The computer engineering program combines fundamental core requirements with flexibility to allow students to specialize in a variety of emphasis areas within the program. The curriculum includes requirements in the basic sciences, mathematics, and humanities; a primary core of hardware and software courses; and a set of electives that combine breadth and depth requirements as described below. Students who major in computer engineering who wish to apply for graduate study in electrical engineering or computer science are encouraged strongly to select their elective courses to demonstrate depth in that particular area; the structure of the program enables that option. The course of study leads to a bachelor of engineering.

Undergraduate Honors Program. With faculty approval, junior and senior students may be accepted into the Honors Program. To achieve honors status, the student must:

1. achieve and maintain a minimum GPA of 3.5.
2. complete 3 hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861) with final written report
3. complete 6 hours of ECE program elective credit from the following list:
    a. up to 3 additional hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861), or
    b. design domain expertise (DE) courses beyond the one course required by the program, or
    c. CS 3259, CS 3892, CS 4287, or
    d. 5000-level courses.

The diploma designation is Honors in Computer Engineering.

Facilities. Electrical and computer engineering supports undergraduate laboratories emphasizing the principal areas of the disciplines: analog and digital electronics, microcomputers, microprocessors, microelectronics, and instrumentation. In addition, several specialized facilities are available for graduate research: the advanced carbon nanotechnology and diamond labs, the Institute for Software Integrated Systems, the Institute for Space and Defense Electronics, the Medical Image Processing Laboratory, the Center for Intelligent Systems and Robotics Laboratories, the Embedded Computer Systems Laboratory, and biomedical, biosensing, and photonics laboratories.

The work in electrical and computer engineering is supported by a variety of computers and networks, including the high-performance computing facilities of the Advanced Computing Center for Research and Education. Vanderbilt is one of the founding partners in the Internet II initiative.

Students interested in the major or minor in Computer Engineering are encouraged to consider instead those in Electrical and Computer Engineering.

The major or minor in Computer Engineering may no longer be declared. Currently declared CmpE students will be supported in completing the relevant program, including the pursuit of honors in the major if relevant.

Curriculum Requirements

The B.E. in computer engineering requires a minimum of 121 hours, distributed as follows:

1. Mathematics (18 hours). Required courses: MATH 1300, 1301, 2300, 2400, 2810
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L; MSE 1500, 1500L (or CHEM 1602, 1602L).
3. Engineering Fundamentals (6 hours). Required courses: ES 1401, 1402, 1403, 2100W.
4. Culminating Design Experience (7 hours). Required courses: ECE 4950, 4951, 4959.
5. Computer Engineering Core (at least 23 hours). Required courses: ECE 2112, 2123, 2123L, 2218, 2218L; either ECE 2213 (and 2213L) or 3214; CS 1101 or 1104; CS 2201, 3251.
6. Computer Engineering Electives (18 hours). To comprise:
    a. at least six hours in each of two of the three Computer Engineering Areas of Concentration listed below. Embedded Systems must include EECE 4376, Computing Systems and Networks must include CS 3281, and Intelligent Systems and Robotics must include EECE 4257 among the six hours.
    b. at least one design domain expertise (DE) course as designated below
    c. other courses listed in the Computer Engineering Areas of Concentration below, or EECE or CS courses numbered above 3000 (including CS 3860, 3861, and EECE 3860, 3861).
    d. courses with associated labs require completion of both the lecture and lab portions to count as Computer Engineering Electives.
7. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
8. Technical electives (12 hours).

    a. CHBE (except 2150, 2900W); CE; CS (except 1000, 1101, 1103, 1104, 1151); ECE (hours above basic requirement in sections 5 and 6 above); ENGM 3010; ENVE; ES 3300; ME; MSE (except 1500, 1500L); NANO 3000; SC 3250, 3260 (6-12 hours). At least 6 hours must be taken from the following approved engineering technical electives: BME (except 2860)**;

    b. (0-6 hours). Up to 6 hours may be taken from this list of optional technical electives: ENGM 2160, 2210, 3000, 3100, 3300, 3650, 4500; MSE 1500, 1500L (if CHEM 1602, 1602L is used for basic science requirement); ASTR (except 1010, 1111, 2130); BSCI (except 1111); CHEM (except 1010, 1020, 1601, 1602, 1111); EES (except 1080, 1111, 2150); MATH 2410 and above; NSC 2201, 3269, 4961; PHYS above 2000; PSY 2100, 3780
9. Open Elective (3 hours)

Undergraduates in computer engineering may apply the pass/fail option only to courses taken as open electives subject to the school requirements for pass/fail.

**Computer engineering majors may earn credit for only one of BME 3300 and BME 3302.

Computer Engineering Areas of Concentration

Embedded Systems	Computing Systems and Networks	Intelligent Systems and Robotics
ECE 4257	CS 3265	CS 4260
ECE 4275	CS 3274 (DE)	CS 4269 (DE)
ECE 4356 (DE)	CS 3281	ECE 4257
ECE 4358 (DE)	CS 3282 (DE)	ECE 4353 (DE)
ECE 4376 (DE)	CS 4266 (DE)	ECE 4354 (DE)
ECE 4377 (DE)	CS 4278 (DE)	ECE 4358 (DE)
ECE 4385 (DE)	CS 4279 (DE)	ME 4271
CS 3274 (DE)	CS 4383 (DE)	
	CS 4284 (DE)	
	CS 4285	
	CS 4288 (DE)	
	ECE 4371 (DE)	

(DE) designates a Design Domain Expertise course

Specimen Curriculum for Computer Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
ECE 2112	Circuits I	3	–
ECE 2123, 2123L	Digital Systems and Laboratory	4	–
ECE 2218, 2218L	Microcontrollers and Laboratory	–	4
CS 2201	Program Design and Data Structures	3	–
CS 3251	Intermediate Software Design	–	3
	Liberal Arts Core	–	3
		17	14
JUNIOR YEAR			
MATH 2810	Probability and Statistics for Engineering	-	3
ES 2100W	Technical Communications	3	–
ECE 4376, 4376L	Embedded Systems and Laboratory	4/3	–
or CS 3281	Principles of Operating Systems I		
ECE 2213, 2213L	Circuits II and Laboratory Signals and Systems	4/3	–
or ECE 3214			
	CMPE Program Electives ‡	3	6
	Liberal Arts Core	3	3
	Technical Electives	–	3
		15-17	15
SENIOR YEAR			
ECE 4950	Program and Project Management for EECE	3	–
ECE 4951	Electrical and Computer Engineering Design	–	3
ECE 4959	Senior Engineering Design Seminar	1	–
	CMPE Program Electives ‡	3	3
	Liberal Arts Core	3	3
	Technical Electives	6	3
	Open Electives	–	3
		16	15

‡ As described in “Computer Engineering Degree Requirements” subsection 6. At least one design domain expertise (DE) course required prior to ECE 4951.

Minor in Computer Engineering

The minor in computer engineering is available to all students except those majoring or minoring in electrical engineering or computer science. The computer engineering minor requires a minimum of 17 hours of EECS courses, including the completion of all laboratory corequisites for courses selected for the minor, distributed as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Digital Systems: EECE 2123, 2123L	4 hours
3. Microcontrollers: EECE 2218, 2218L	4 hours
4. ECE 2112 or CS 2201 or CS 2204	3 hours
5. At least 3 hours of ECE or CS courses numbered 2000 or above (excluding ECE 3860, 3861 or CS 3860, 3861)	3 hours
Total:	17–18 hours

Computer Science (Engineering)

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DIRECTOR OF GRADUATE STUDIES Abhishek Dubey (MS), Taylor T. Johnson (PhD)

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RESEARCH ASSISTANT PROFESSOR Gayathri Narasimham

ASSISTANT PROFESSORS OF THE PRACTICE Gina Bai, Charreau Bell, Shervin Haiiamini, Md. Kamrul Hasan, Diego Mesa, Dana Zhang

ADJUNCT ASSISTANT PROFESSORS Yogesh Barve, Ronald Hedgecock, Marcus Quinones-Grueiro, Adrienne Slaughter, Hamilton Turner

COURSES OFFERED: CS

The program in computer science blends scientific and engineering principles, theoretical analysis, and actual computing experience to provide undergraduate students with a solid foundation in the discipline. Emphasis is on computing activities of both practical and intellectual interest, and on theoretical studies of efficient algorithms and the limits of computation. Computer facilities are available for class assignments, team projects, and individual studies.

Students are challenged to seek original insights throughout their study. Working in teams, participating in summer internships, supporting student professional organizations, and developing interdisciplinary projects are strongly encouraged.

The computer science major provides an excellent back- ground for medical studies, and the flexibility provided by its many open electives allows students to prepare for medical school while earning a degree in computer science with a normal load in four years. Interested students should discuss their plans with their computer science adviser in the fall of their first year.

In addition to the bachelor of science, the master of science and doctor of philosophy are also awarded in computer science. Computer Science majors in the School of Engineering are encouraged to consider a double major or minor to complement their CS studies. Popular double majors include Mathematics, Economics, HOD and Physics. The second major in Computer Science is accessible to students outside of the School of Engineering. Second major requirements can be found following the engineering specimen curriculum below.

Undergraduate Honors. Honors in Computer Science provides recognition for select undergraduates who have experienced advanced study in computer science. Students who have an overall GPA of 3.5 or better, a GPA of 3.5 or better in computer science classes, and six hours of any combination of undergraduate research (CS 3860 and 3861) and courses at or above the 6000-level will be granted honors in the computer science program. The diploma designation is Honors in Computer Science.

Curriculum Requirements

The B.S. in computer science requires a minimum of 120 hours, distributed as follows:

1. Mathematics (17-19 hours). Required components:
    a. Calculus/Linear algebra (14–16 hours). A sequence selected from the following:
        i. MATH 1300, 1301, 2300, and one of 2410 or 2600, or
        ii. MATH 1300, 1301, 2500, 2501
    b. Statistics/Probability (3 hours): MATH 2810, 2820, or 3640.
2. Science (12 hours). To be selected from the following list and include at least one laboratory course: BSCI 1100, 1100L, 1510, 1510L, 1511, 1511L, 2218, 2219; CHEM 1601, 1601L, 1602, 1602L; EES 1510, 1510L; MSE 1500, 1500L; PHYS 1601, 1601L, 1602, 1602L. Advanced Science Courses may be substituted by special permission. Recommended: CHEM 1601, 1601L; PHYS 1601, 1602.
3. Introduction to Engineering (3 hours): ES 1401, 1402, 1403.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Computer Science Core (25 hours).
    - Software/Problem Solving: CS 1101 or 1104, and CS 2201, 3251, 3270.
    - Hardware/Systems: CS or ECE 2281, CS or ECE 2281L, CS 3281.
    - Foundations: CS 2212, 3250.
6. Computer Science Depth (15 hours). To be selected from computer science courses numbered 3000 or higher (except CS 3262); ECE 4353, 4354, 4375, and no more than two from MATH 3320, 3620, 4600, 4620. A maximum of 6 hours may come from CS 3860, 3861.
7. Computer Science Project (3 hours). To be selected from CS 3892, 4239, 4249, 4269, 4279, 4287, 4289.
8. Computer Science Seminar (1 hour). CS 4959.

9. Technical Electives (6 hours). To be selected from courses numbered 2000 or higher within the School of Engineering (except 2860 in any program, ENGM 2440, ENGM 4800, ES 2700, ES 3884, and CS courses numbered below 3000); or courses numbered 2000 or higher in the College of Arts and Science listed in the mathematics and natural science (MNS) AXLE distribution requirements.
10. Open Electives (18–20 hours).
11. Computers and Ethics (3 hours) CS 1151. May be used to satisfy three hours from the Liberal Arts Core (#4) or Open Electives (#10). May not be taken on a pass/fail grading basis by CS majors or minors.
12. Writing Component (3 hours). At least one “W”-designated course or 1111 course in the English Language must be included from the Liberal Arts Core (#4), Technical Electives (#9), or Open Electives (#10).

Undergraduates in computer science may apply the pass/fail option only to courses taken as open electives, technical electives, or part of the liberal arts core, subject to the school requirements for pass/fail.

Specimen Curriculum for Computer Science

		Semester hours	
FIRST YEAR		FALL	SPRING
CHEM 1601, 1601L	General Chemistry and Laboratory	4	–
PHYS 1601, 1601L	General Physics I and Laboratory	–	4
MATH 1300	Accelerated Single-Variable Calculus I	4	–
MATH 1301	Accelerated Single-Variable Calculus II	–	4
ES 1401-1403	Introduction to Engineering	3	–
CS 1101	Programming and Problem Solving	–	3
	Liberal Arts Core	–	3
	Open Electives	3	–
		14	14
SOPHOMORE YEAR			
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
MATH 2300	Multivariable Calculus	–	3
CS 2201	Program Design and Data Structures	3	–
CS 2212	Discrete Structures	3	–
CS 2281, 2281L	Computer Architecture	–	4
CS 3251	Intermediate Software Design	–	3
	Liberal Arts Core	–	3
	Open Electives	6	3
		16	16
JUNIOR YEAR			
MATH 2410	Methods of Linear Algebra	–	3
MATH 2820	Introduction to Probability and Mathematical Statistics	3	–
CS 3250	Algorithms	–	3
CS 3270	Programming Languages	3	–
CS 3281	Principles of Operating Systems I	3	–
	Computer Science Depth	–	3
	Liberal Arts Core	3	3
	Open Electives (ES 2100W recommended)	2	3
		14	15
SENIOR YEAR			
CS 4959	Computer Science Seminar	1	–
	Computer Science Project	–	3
	Computer Science Depth	9	3
	Technical Electives	3	3
	Liberal Arts Core	3	3
	Open Electives	–	3
		16	15

Second Major in Computer Science for Non-Engineering Students

The second major in computer science for students enrolled outside the School of Engineering requires 40 hours comprising items 5 and 7 of the curriculum requirements listed above as well as 12 hours of course work as described in item 6.

Courses taken toward the second major may not be taken pass/fail.

Computer Science Minor

The minor in computer science is available to all students except those majoring in computer engineering. The minor in computer science requires 15–16 hours of computer science courses as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Discrete Structures: CS 2212	3 hours
3. Intermediate Computer Concepts: CS 2201	3 hours
4. CS 2281 (and 2281L) or ECE 2281 (and 2281L), or CS 3250, or CS 3251	3-4 hours
5. One additional CS course numbered 3000 or above (excluding CS 3262)	3 hours
Total:	15-16 hours

Degree Programs in Engineering

Bachelor of engineering degree programs are offered in the areas of biomedical, chemical, civil, electrical and computer, and mechanical engineering. Many of these programs allow considerable flexibility—but students are required to include in their courses of study those bodies of knowledge fundamental to that discipline.

Bachelor of science degree programs are offered in computer science and engineering science. The latter interdisciplinary engineering discipline allows strong concentration in other areas of engineering or outside of the School of Engineering.

The school offers the master of engineering (M.Eng.), with emphasis on engineering design and practice, in most areas of study. The Graduate School, through departments of the School of Engineering, offers the research-oriented Ph.D. and M.S. degrees in eight major fields. Degree programs offered by the School of Engineering are shown below.

Degree Programs in Engineering

	B.E.	B.S.	M.Eng.	M.S.	Ph.D.
Biomedical Engineering	•		•	•	•
Chemical Engineering	•		•	•	•
Civil Engineering	•		•	•	•
Computer Engineering*	•				
Computer Science		•		•	•
Cyber-Physical Systems			•		
Electrical and Computer Engineering	•			•	•
Engineering in Surgery and Intervention			•		
Engineering Management			•		
Engineering Science		•			
Environmental Engineering			•	•	•
Interdisciplinary Materials Science				•	•
Mechanical Engineering	•		•	•	•
Risk, Reliability, and Resilience Engineering			•		

*Students interested in computer engineering should choose the major in Electrical and Computer Engineering. The major in Computer Engineering is closed to new enrollments.

Undergraduate Degrees Bachelor of Engineering

The bachelor of engineering is offered in biomedical, chemical, civil, electrical and computer, and mechanical engineering. The B.E. degree requirements vary from 121 to 127 semester hours. Students seeking double majors will require somewhat more credit hours.

Bachelor of Science

The bachelor of science is offered in computer science and engineering science, requiring 120 and 121 semester hours, respectively. These programs have more flexibility in elective choice than the B.E. degree programs.

The First Year

Most courses normally scheduled for the first year are common to both the B.E. and B.S. degree programs. While the curriculum for the first year is generally the same for all students, there are important variations. For example, some major programs require a full year of introductory chemistry; others do not. Students should become familiar with requirements of those programs in which they have an interest and confer with their adviser at the time of enrollment and throughout the first year to plan a program of study that will keep options open as long as possible.

Specimen curricula for the engineering programs are given in the Courses of Study section. Requirements for the B.E. and B.S. degrees for the various programs vary in the minimum amount of hours in specific course requirements in the basic sciences and in mathematics.

Included in the first year for all majors is the course Engineering Science 1401–1403 (Introduction to Engineering), which introduces the student to design tools used in all areas of engineering.

Some students may qualify for advanced placement or advanced credit in mathematics, science, the humanities and social sciences, or computer science. If advanced credit is awarded, it will not affect the student’s Vanderbilt grade point average.

Mathematics and Physics

Entering engineering students will be placed in the appropriate level mathematics course. Students having one full year or more of high school credit in analytic geometry and calculus may qualify for advanced placement in a regular sequence by scoring well on the Advanced Placement Examination.

Students with high mathematical ability and achievement may apply for enrollment in the Math 2500-2501 sequence as a substitute for Math 2300. For more information, see the course descriptions under Mathematics in the Arts and Science section of this catalog. For majors requiring Math 2420 (Methods of Ordinary Differential Equations), students may select Math 2400 (Differential Equations with Linear Algebra) or Math 2610 (Ordinary Differential Equations) as a substitute.

Students with inadequate backgrounds in mathematics may be required to take Math 1005 (Pre-calculus Mathematics). Taking this course constitutes an additional requirement for graduation.

Math 1010-1011 (Probability and Statistical Inference) and Math 1100 (Survey of Calculus) cannot be credited toward a degree in the School of Engineering.

Students with greater interest in physics may enroll in Phys 1911, 1912, 1912L, and 2255L (Principles of Physics I and II and labs) as substitutes for Phys 1601, 1602, 1601L, and 1602L (General Physics I and II and labs), respectively. Students should consult with their Academic Adviser before taking this more advanced Physics sequence.

Pre-calculus courses Phys 1010, 1010L, 2051, 2052, 2053, and 2054 cannot be credited toward a degree in the School of Engineering.

Liberal Arts Core

In order to provide the elements of a general education considered necessary for responsible practice as an educated engineer, the School of Engineering requires each student to complete at least 18 hours in the Liberal Arts Core comprising:

1. At least 3 hours selected from courses classified in the AXLE Curriculum Course Distribution as Humanities and Creative Arts (HCA), with the exception of CMST 1500, 2100, 2110, and 2120, and
2. At least 3 hours selected from courses classified in the AXLE Curriculum Course Distribution as Social and Behavioral Sciences (SBS).

The remaining hours are to be selected from:

1. Courses classified in the AXLE Curriculum Course Distribution as Humanities and Creative Arts (HCA), International Cultures (INT), History and Culture of the United States (US), Social and Behavioral Sciences (SBS), and Perspectives (P)
2. CS 1151 and ENGM 2440
3. ARA, CHEB, CHIN, FREN, GER, GRK, HEBR, HNUR, ITA, JAPN, KICH, KOR, LAT, RUSS, SNSK, and SPAN courses numbered 1101; CHIN and JAPN courses numbered 1011 and 1012; and ENGL and SPAN courses numbered 1100
4. Peabody College courses in Psychology and Human Development numbered 1205, 1207, 1250, 2200, 2250, 2300, 2400, 2500, 2550, 2600, and 3150, and in Human and Organizational Development numbered 1250, 1300, 2100, 2260, 2400, 2500, 2700, and 3232
5. All MUSO, COMP, MREP, MUTH, and performance courses in the Blair School of Music, except MUSO 1001
6. MS 1510

Open Electives

Courses taken beyond specified courses and restricted (such as program, technical, and liberal arts) electives for the major may be taken as open electives.

Officer Education

Course offerings in military science and naval science are described in the section on Special Programs for Undergraduates near the front of the catalog. All officer education courses designated as eligible for credit may be taken as open electives. In addition, officer education courses in history and political science that carry AXLE designations may be taken as part of the Liberal Arts Core. AFROTC students may count 6 hours of the military courses as open electives.

Master of Engineering

The master of engineering (M.Eng.) is an advanced professional degree awarded by the School of Engineering and especially designed for engineering practitioners who may prefer to work while doing professional study. It is also suitable for individuals who apply directly from undergraduate school—but the thrust of the program is toward professional practice in engineering rather than research or teaching. The degree is offered in biomedical engineering, chemical engineering, civil engineering, cyber-physical systems, engineering in surgery and intervention, engineering management, environmental engineering, mechanical engineering, and risk, reliability, and resilience engineering.

Students must complete 30 hours of approved course work. A maximum of 6 hours of graduate-level course work may be transferred from another institution, and a maximum period of seven years is allowed to complete the degree. An extensive, written design report shall be submitted on a project approved by the student’s project adviser.

Admission to the Master of Engineering program normally requires graduation from an approved undergraduate program in engineering or a related scientific discipline, attainment of a B average in undergraduate courses applicable to the student’s career goals, and recommendations containing favorable appraisals of professional

promise and attitude. A period of successful work experience prior to application to the program will also be given consideration. For information about admissions, application procedures, and application deadlines for the Master of Engineering programs, please visit engineering.vanderbilt.edu/gradschool.

For international students who did not graduate from an institution in a country where English is the official language, proficiency in English must be shown by a minimum score of 89 on the TOEFL or 7 on the IELTS test.

Digital Learning Programs

The School of Engineering offers two degree programs online: an M.S. in Computer Science, and an M.Eng. in Engineering Management. Courses in these digital learning programs are only available to students enrolled in these online degree programs. For information about admissions, application procedures, and application deadlines for the School of Engineering Digital Learning programs, please visit the website engineeringonline.vanderbilt.edu.

Degree Programs in the College (Arts and Science)

The Bachelor of Arts

The bachelor of arts degree is granted upon successful completion of the following five requirements:

1. At least 120 semester hours of creditable college work,
2. A final grade point average of at least 2.000,
3. Completion of the AXLE requirements,
4. Completion of one of the options listed under Area of Concentration,
5. Completion of at least 102 credit hours of course work within the College of Arts and Science, or a minimum of 90 credit hours for those students with a second major outside the College of Arts and Science.

Limitation on Credit Hours outside the College

Candidates for the bachelor of arts degree must successfully complete a minimum of 102 credit hours within the College of Arts and Science. Students who are completing an approved second major from one of the other schools within Vanderbilt are required to complete 90 credit hours within the College of Arts and Science for the bachelor of arts degree.

AXLE: Acheiving eXcellence in Liberal Education

The Arts and Science core program of study—known as AXLE—is anchored in intensive practice in writing and a diverse thirteen-course component of classes that has been designed to allow maximum choice in course selection (based on student interests and achievement levels). At the same time, the distribution requirements of AXLE ensure that students will explore intellectually and academically the breadth of possibilities represented by the liberal arts.

What Is Liberal Education?

The study of the liberal arts—what is historically called a liberal education—is the oldest and most venerable form of higher education. It has proved itself perennially flexible and adaptive over the past centuries, and it remains the single best educational preparation for further, specialized study in the professions (medicine, law, education, business, et al.), as well as for doctoral work in the humanities and social sciences and advanced research in the sciences. The holistic focus of a liberal education encompasses all areas of human knowledge: the natural and social sciences, mathematics, foreign languages and cultures, the arts, and the humanities. The empirical disciplines guide us in our efforts to live most productively and efficiently. But the rest of the curriculum—the humanities and the arts—makes it possible to reflect upon the right use of the remarkable scientific knowledge we have acquired. In a liberal arts education, content is always considered in its larger context. Thus, the reflective and discursive aspects of study in the liberal arts call upon students to move beyond the mere acquisition of information to inquire into the deeper issues within their studies, and to connect their learning across disciplines and cultures as they live and work in the communal environment of Vanderbilt. The end product of a successful liberal arts education is a thoughtful citizen who is prepared to take up his or her rights and responsibilities in a democratic society, to analyze and critique received information, to articulate the issues at hand or the personal values at stake, and whose intellectual life is marked by ongoing internal dialogue about the quality and meaning of life for him or her, as well as for the community at large.

Fear No Learning!

The interdisciplinary inclination of many courses in the College of Arts and Science is an ideal training ground for learning new methodologies for problem solving in the complex, global world of the 21st century. Here, students may work with biologists and psychologists in the Neuroscience program; study with creative writers, sociologists, historians, or cinema and media arts scholars in the African American and Diaspora Studies program; or take a class, team taught, by professors from the School of Music and the Department of English in the College of Arts and Science. Over the course of a Vanderbilt education, students challenge themselves with the academic demands of the classes they select, and are challenged by new ideas and unfamiliar ways of looking at issues. Exploring beyond the boundaries of one's intellectual comfort zone in order to admit new ideas is one of the most important aspects of higher education. The time and effort devoted to selecting thoughtfully the courses that will satisfy AXLE requirements prepare students for the more specialized study that they undertake in their major (or majors).

How to Get Started

The program of studies is divided approximately into thirds:

1/3 — courses to meet the requirements of the Writing and Liberal Arts requirements;

1/3 — courses required to complete the chosen major;

1/3 — electives, which will complete the 120 credit hours required for graduation.

These divisions are approximate and may differ for individual students.

For a student's first semester, most selections should be from the first group, courses that will fulfill the Writing and Liberal Arts requirements. Academic background, career goals, and general talents and interests will affect choice of courses.

Upon graduation, students in the College of Arts and Science will receive a bachelor of arts degree upon completion of the other four requirements in addition to AXLE: fulfillment of requirements for one major, a 2.000 average in the major, 120 cumulative earned credit hours, and a 2.000 average overall.

Where to Get Information

In addition to this catalog's sections on the rules, regulations, and policies of the College of Arts and Science as well as descriptions of the academic programs of all the undergraduate schools, students may refer to the booklet, *Understanding Your Core Curriculum & Pre-major Advising,* a College of Arts and Science manual for entering students.

Where to Get Advice

Entering students are assigned pre-major advisers from CASPAR (College of Arts and Science Pre-major Academic Advising Resources Center). Pre-major advisers are carefully selected and receive intensive training on how to help students proceed effectively through the requirements of AXLE and chart a course of study. These advisers will counsel students through their first three and one-half semesters or until they declare a major. At that time, students are assigned faculty advisers in their major departments. Students are encouraged to see their advisers at any time; they must, however, consult their pre-major adviser three times during the first year: during summer before the fall semester, prior to the opening of enrollment windows for the spring semester, and prior to the opening of enrollment windows for the fall semester of their second year. Prior to their first semester, entering first-year students must consult in June with their pre-major adviser who will assist with course selections for registration for the fall and begin to understand each student's interests and goals. (This initial contact is typically via phone and/or email.)

What Is AXLE?

AXLE is the acronym for Achieving eXcellence in Liberal Education. It is the core curriculum that all students in the College of Arts and Science must fulfill. The AXLE curriculum is flexible and very user-friendly. It consists of two parts: the Writing Requirement and the Liberal Arts Requirement.

The Writing Requirement has four segments: completion of English 1100 or demonstration of basic skills in English composition; completion of a First-Year Writing Seminar; completion of a writing course (indicated by a "W") no later than the fourth semester in residence; and completion of a second writing course (indicated by a "W") or an approved course in oral communication (CMST 2100, 2110, or 2120).

The Liberal Arts Requirement is composed of a total of thirteen courses taken at Vanderbilt, and distributed across six categories. The First-Year Writing Seminar and all writing courses, and approved Oral Communication courses are also counted in the thirteen-course Liberal Arts Requirement.

1. The Writing Requirement (three to four courses)
    a. English Composition ENGL 1100 (appropriate test score or one course)
    b. First-Year Writing Seminar (one course)
    c. a W course before the end of the fourth semester (one course)
    d. a second W course or approved Oral Communication course (one course)
2. The Liberal Arts Requirement (13 courses)
    a. HCA — Humanities and the Creative Arts (three courses)
    b. INT — International Cultures (three courses)
    c. US — History and Culture of the United States (one course)
    d. MNS — Mathematics and Natural Sciences (three courses)
    e. SBS — Social and Behavioral Sciences (two courses)
    f. P — Perspectives (one course)

All students must also complete requirements for at least one major (between 27 and 48 credit hours of course work) and earn a minimum number of 120 earned credit hours in order to graduate.

Overview of AXLE

AXLE consists of two parts: the Writing Requirement (including a First-Year Writing Seminar) and the Liberal Arts Requirement.

The First-Year Writing Seminar

The First-Year Writing Seminar is an integral part of the first-year experience in the College of Arts and Science. Through these seminars, first-year students engage in independent learning and inquiry in an environment in which they can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. The small-group nature of these seminars allows for direct student-faculty interaction that stresses training in techniques of scholarly inquiry. The students' written work and oral presentations are subject to thoughtful critical review by the faculty member, providing feedback that can be used to reconsider the manner in which they articulate their ideas and to refine their skills in these areas. Thus, first-year students learn not only about the subject matter of the seminar, but are also exposed to new methods of acquiring knowledge, different ways of expressing and sharing ideas, and unique opportunities to participate in critical inquiry.

All first-year students must enroll in a First-Year Writing Seminar. (First-Year Writing Seminars in the College of Arts and Science are numbered 1111.) This course may be taken during the fall or the spring semester. Students are permitted to enroll in only one First-Year Writing Seminar per semester. All First-Year Writing Seminars also count in their appropriate distribution areas within the Liberal Arts Requirement, but a second seminar will not count toward the writing requirement. Students who transfer into the College of Arts and Science (whether from another school at Vanderbilt or from another college or university) do not complete a First-Year Writing Seminar. Students beyond their second semester in residence may not register for First-Year Writing Seminars, nor may First- Year Writing Seminars be repeated after completion of the second semester in residence.

The Writing Requirement

Excellent communication skills, including the ability to articulate ideas and defend positions in writing, will be paramount for the 21st-century graduates of Vanderbilt University; therefore, all students in the College of Arts

and Science must successfully complete the Writing Requirement.

a. All students must demonstrate competence in English composition. Appropriate skills in composition are essential to successful progress at the Competence is demonstrated by completion of ENGL 1100 or any of the following test-based or transfer-credit satisfiers:
    i. SAT: Combined score of at least 1220 on the Writing and Critical Reasoning sections, with a minimum score of 500 on each (test taken prior to March 2016).
    ii. SAT: Score of at least 660 on the Evidence-Based Reading and Writing section, with a minimum score of 27 on the Reading section and a minimum score of 28 on the Writing and Language section (test taken March 2016 or later).
    iii. ACT: Score of at least 30 on the English portion (beginning October 2016).
    iv. AP: Minimum score of 4 on the English Language or English Literature exam.
    v. IB: Minimum score of 6 on the Higher level English
    vi. Transfer credit for English 1100
    vii. Transfer credit for English 1210W, 1220W, 1230W, 1250W, 1260W, 1270W, or 1300W. (If used to satisfy the English composition requirement, the transfer credit does NOT also count as the W course required to achieve junior standing.)
    viii. Score of at least 55 on the Tailwind English proficiency exam
b. First-Year Writing Seminar (see above).
c. All students must successfully complete at least one Arts and Science writing course (indicated by a “W”) at Vanderbilt University, regardless of AP or IB credits, SAT scores, or ACT scores earned prior to matriculation. The 1000-level writing-intensive courses emphasize general writing skills within the context of discipline-specific subject matter. The 2000 and higher-level writing-intensive courses foster advanced, discipline-specific writing skills. Departments or programs that offer these courses determine their specific writing In 2000 or higher-level W courses, continued attention to the process of writing is included in the classroom. Students receive regular feedback on their writing that will contribute toward enhancing writing skills appropriate to specific disciplines. The process of revising written work allows students to reflect on the writing process; writing tutorials may also be included. All students are required to complete a W course (other than ENGL 1100 or a First-Year Writing Seminar) **no later than the fourth semester.** All Arts and Science W courses also count in their appropriate distribution areas within the Liberal Arts Requirement.
d. All students must successfully complete either a second Arts and Science W course (other than ENGL 1100 or a First-Year Writing Seminar), or an approved course in oral communication (CMST 2100, 2110, 2120) at Vanderbilt University, regardless of AP or IB credits, SAT scores, or ACT scores earned prior to Oral communication courses focus on developing improved public speaking skills. These courses introduce students to the principles and practices of public discourse and reasoned argument. Attention to the process of effective oral communication is integral to these classes. Students receive regular speaking assignments throughout the semester and regular feedback to enhance effective speaking skills. **All students must complete Part d of the Writing Requirement before graduation.**

The Liberal Arts Requirement

The Liberal Arts Requirement consists of successful completion of thirteen courses from the College of Arts and Science. Most courses in the College of Arts and Science fulfill one of these Liberal Arts requirements. Courses must carry three or more credits to count toward the AXLE Liberal Arts Requirement. Although some courses may be appropriate to more than one requirement, each course will fulfill only one requirement. These thirteen courses must be distributed as outlined below. They must be taken from at least seven departments or subject areas.

a. Humanities and the Creative Arts — HCA (3 courses)

Courses in the humanities and the creative arts challenge students to examine their personal understanding of life and how their individual experiences overlap with those of the rest of humankind. These courses testify to the varying ways in which people think, form values, confront ambiguity, express spiritual and aesthetic yearnings, and grapple with moral and ethical problems. By analyzing and interpreting literary, philosophical, religious, or artistic works, students examine the foundations of human experience. By producing original artistic works in imaginative writing, studio art, theatre, film, music, and dance, students have the opportunity to connect the universal sources of human inspiration with their own creative processes.

b. International Cultures — INT (3 courses)

The study of international cultures provides students with a basis for understanding the diversity of experiences

and values in our contemporary, global society. Options in this category include not only international history and cultural studies courses, but also courses in literature, cinema and media arts, the social sciences, art, music, and languages. Students may satisfy this requirement by choosing courses that focus on the history and culture of a single society or time period in human history and/or that represent a broad spectrum of different human societies and time periods.

Language courses introduce students to the language of a different culture and provide insight into that culture in ways that are not possible to achieve through detached study. At intermediate and advanced levels, students are able to explore the culture in depth, using the language itself to read, discuss, and write about its various aspects. Even at the most basic level, exposure to the language of a different culture prepares students to think and act in terms of living in a global community.

Intermediate and advanced language courses prepare students for study abroad programs, which the College of Arts and Science strongly recommends. A maximum of one course in this requirement may be satisfied through study abroad in a Vanderbilt-approved program. A summer study abroad program must earn 6 or more credit hours to satisfy this requirement.

The Global Education Office maintains a list of pre-approved programs.

Note: All students who study abroad must register their travel in advance with Vanderbilt's international security provider. Registration is completed on your behalf if you enroll in a program offered through the Global Education Office. Otherwise, information is available on the GlobalVU website: vanderbilt.edu/global.

All students must complete three courses in this category, irrespective of previous language study or proficiency in a language other than English. At least one of the three courses presented in fulfillment of this category must be a second-semester (or higher) language acquisition class taught at Vanderbilt University (or through the Duke–UVa–Vanderbilt Partnership for Less Commonly Taught Languages), unless the student successfully demonstrates proficiency in a language other than English at or above the level achieved by second-semester language acquisition classes taught at Vanderbilt University. Students may demonstrate proficiency in a number of ways: SAT Subject Test scores (French, 540; German, 470; Hebrew, 530; Italian, 540; Japanese with Listening, 440; Latin, 530; Spanish, 520); by appropriate score on proficiency tests (written and oral) administered by the Tennessee Language Center; or with AP or IB credit in a foreign language. The first semester of an introductory language acquisition class in any language a student has studied for at least two years in high school, or in which a student transfers credit from another institution, cannot be used in partial fulfillment of this requirement. Intensive elementary language courses that cover the content of two semesters in one shall count as one course toward this category.

Students who, because of special ability and achievement, are admitted to the College of Arts and Science without the normally required two years of one foreign language in high school must enroll in a foreign language course during their first semester and must remain continuously enrolled until they successfully complete a full year of one foreign language. They must complete this requirement by the end of their fourth semester in the College of Arts and Science.

c. History and Culture of the United States — US (1 course)

The study of the history and culture of the United States provides students with a basis for understanding the American experience and the shaping of American values and viewpoints within the context of an increasingly global society. Interpreting history and culture in the broadest sense, options in this category include traditional history and cultural studies courses, but also courses in literature, cinema and media arts, the social sciences, art, and music, which illuminate historical periods or cultural themes in United States history. Students may satisfy this requirement by choosing a course that focuses on the history and culture of a single social group or time period in American history and/or that represents a broad spectrum of different social groups and time periods.

d. Mathematics and Natural Sciences — MNS (3 courses, one of which must be a laboratory science)

Courses in mathematics emphasize quantitative reasoning and prepare students to describe, manipulate, and evaluate complex or abstract ideas or arguments with precision. Skills in mathematical and quantitative reasoning provide essential foundations for the study of natural and social sciences. Students are generally introduced to mathematical reasoning through the study of introductory courses in calculus or probability and statistics.

Courses in the natural sciences engage students in hypothesis-driven quantitative reasoning that helps to explain natural phenomena, the roles of testing and replication of experimental results, and the processes through which scientific hypotheses and theories are developed, modified, or abandoned in the face of more complete evidence, or integrated into more general conceptual structures. Laboratory science courses engage students in methods of experimental testing of hypotheses and analysis of data that are the hallmarks of the natural sciences. Natural science courses prepare students to understand the complex interactions between science, technology, and society; teach students to apply scientific principles to everyday experience; and develop the capacity to distinguish between science and what masquerades as science.

e. Social and Behavioral Sciences — SBS (2 courses)

Social scientists endeavor to study human behavior at the levels of individuals, their interactions with others, their societal structures, and their social institutions. The remarkable scope represented by these disciplines extends from studying the underpinnings of brain function to the dynamics of human social groups to the structures of political and economic institutions. The methods employed by social scientists are correspondingly broad, involving approaches as varied as mapping brain activity, discovering and charting ancient cultures, identifying the societal forces that shape individual and group behavior, and using mathematics to understand economic phenomena. By studying how humans and societies function, students will learn about individual and societal diversity, growth, and change.

f. Perspectives — P (1 course)

Courses in Perspectives give significant attention to individual and cultural diversity, multicultural interactions, sexual orientation, gender, racial, ethical, and religious issues within a culture across time or between cultures, thereby extending the principles and methods associated with the liberal arts to the broader circumstances in which students live. These courses emphasize the relationship of divergent ethics and moral values to contemporary social issues and global conflicts.

The Major

All students must successfully complete a course of study leading to one of the approved major programs in the College of Arts and Science, or successfully complete an individually designed interdisciplinary major designed in consultation with College of Arts and Science faculty and approved by the Committee on Individual Programs in the College of Arts and Science.

AXLE Curriculum Course Distribution

The distribution of Arts and Science courses into AXLE categories is available in YES. Using the advanced-class-search dialog box, use the pull-down menu under “Class Attributes” to select an AXLE category.

AXLE, the Major, and the Optional Minor

Courses used to satisfy requirements of AXLE may also be used to satisfy requirements of the major or the optional minor.

Advanced Placement under AXLE

With the exception of basic English composition and the foreign language proficiency requirements, no AXLE requirement may be fulfilled with any form of advanced placement credit (AP, IB, A-level, etc.).

Transfer Credit under AXLE

Generally, only courses taken in the College of Arts and Science may be used toward AXLE; however, any college course credit earned **prior** to graduation from high school, and transfer credit earned **before** admission to Vanderbilt, may be used toward fulfilling AXLE requirements.

Area of Concentration

During the junior and senior years, much of the student's work is concentrated in one large unit of intellectually related courses. The program of concentration may be arranged through a single major, an interdisciplinary major, or a double major. Each of the three options is described below. A triple major may be declared with the approval of the Administrative Committee.

Major Field

Under this plan, the student majors in one of the recognized fields. There shall not be fewer than 27 credit hours in the major field, but a given department may require up to 48 credit hours. Students may take more than the required number of credit hours in any major; any given department, however, may limit the total permissible credit hours in a discipline.

For graduation, a student must have achieved a grade point average of at least 2.000 in all classes taken in the major. This set of courses includes all courses a student takes in the department or program of the major and all courses a student takes outside the department or program that may count toward the major. All courses that are listed as fulfilling credit hours required for the major, as listed in the *Undergraduate Catalog,* are included in calculating the grade point average in the major.

Within the framework of these general requirements, each department has its own policies governing major work, which are published elsewhere in this catalog or otherwise available to students.

Academic programs of the College of Arts and Science are varied and broad in scope, with departmental majors offered in the following fields:

African American and Diaspora Studies	History
Anthropology	History of Art and Architecture
Architecture and the Built Environment	Jewish Studies
Art	Law, History, and Society
Asian Studies	Mathematics
Biological Sciences	Medicine, Health, and Society
Chemistry	Molecular and Cellular Biology
Cinema and Media Arts	Philosophy
Communication Studies	Physics
Earth and Environmental Sciences	Political Science
Ecology, Evolution, and Organismal Biology	Psychology
Economics	Religious Studies
English	Russian Studies
Environmental Sociology	Sociology
French	Spanish
Gender and Sexuality Studies	Spanish and Portuguese
German Studies	Theatre

Defined Interdisciplinary Programs

Students may also major in defined interdisciplinary programs (listed below). There shall not be fewer than 27

credit hours in the major field, but a given program may require up to 48 credit hours. The student must achieve at least a 2.000 grade point average in all work taken in the major.

American Studies	German and European Studies
Biochemistry and Chemical Biology	Italian and European Studies
Classical and Mediterranean Studies	Latin American Studies
Communication of Science and Technology	Latino and Latina Studies
Economics and History	Neuroscience
European Studies	Public Policy Studies
European Studies: Russia and Eastern Europe	Spanish and European Studies
French and European Studies	

Students may combine an interdisciplinary major with a major in one of the recognized fields listed at the beginning of this section.

Declaration of the Area of Concentration

Students may formally declare a major at any time during the third semester of residence and must do so no later than the Friday before Spring Break of the fourth semester. The student selects a department or interdisciplinary program and contacts that department or program for assignment to an adviser. Students who wish to develop an individually designed interdisciplinary program apply to the associate dean who chairs the Committee on Individual Programs.

Each fall a program is arranged that provides for consultation of sophomores with department chairs, for the purpose of helping students select a major. Sophomore students who have not declared a major should participate in this program if they intend to attain junior standing before the next spring.

Students should declare their intention to pursue specific majors by completing forms available in the Dean’s Office of Undergraduate Education as well as the various departmental and program offices. Departments and programs assign advisers to students who declare majors in their respective areas. Students have the responsibility to know and satisfy all requirements for majors that they intend to complete. When the student’s major has been registered, access to the student’s academic record is transferred from the pre-major adviser to the new major adviser, with whom they should work closely.

Students may not add a major(s) past the fifth class-day of the first semester of the senior year.

Individually Designed Interdisciplinary Majors

This plan permits students to contract for an individually designed program of concentration consisting of at least 48 credit hours of approved work. The program is constructed around a coherent academic purpose and may draw together the academic resources of a number of departments and schools. The program’s purpose may include topical, period, or area studies, and must be consistent with the philosophy underlying a liberal arts education (see the “What is Liberal Education?” section of this catalog). The program should not be designed with a focus on pre-professional training (e.g., pre-business, pre-law, or pre-medicine). The student may be required to achieve a standard of proficiency in appropriately related areas such as foreign languages or mathematics in addition to the 48 credit hours constituting the program of concentration.

Each student must identify a major adviser who will offer advice and guidance. The major adviser must be a professor or full-time senior lecturer in the College of Arts and Science.

The student's plan for an individually designed interdisciplinary major is a statement of required courses. Furthermore, because of the nature of interdisciplinary majors, all courses that have previously been included in the student's plan are considered to be part of the major discipline. The student must achieve at least a 2.000 grade point average in all courses that are (or have been) part of the plan.

Normally, no more than three introductory-level courses will be counted toward the interdisciplinary major.

Students may not add a major(s) past the fifth class day of the first semester of the senior year.

Double and Triple Majors

This program permits a student to concentrate in two or three fields, which may or may not be intellectually related. With approval of the departments concerned, the student completes all of the requirements stipulated for the majors. Triple majors require approval of the Administrative Committee.

Each A&S major must include at least 24 credit hours that are being counted solely toward the major. This rule also applies to students who combine (in a double or triple major) a non-interdisciplinary major with an interdisciplinary major.

Approved Second Majors Outside the College

All undergraduate courses, majors, and minors offered by Blair School of Music, School of Engineering, and Peabody College are approved for students in the College of Arts and Science. See the appropriate sections of the *Undergraduate Catalog* under each school for details. Arts and Science students with a second major from another Vanderbilt undergraduate school must earn a minimum of 90 credit hours in Arts and Science. Consultation with the student's Arts and Science major adviser is especially important.

Digital Fabrication

DIRECTOR Scott A. Guelcher

Affiliated Faculty

PROFESSORS Scott A. Guelcher (Chemical and Biomolecular Engineering), Florence Sanchez (Civil Engineering)

ASSOCIATE PROFESSOR Taylor Johnson (Computer Science)

ASSOCIATE PROFESSOR OF THE PRACTICE Thomas J. Withrow (Mechanical Engineering)

RESEARCH ASSOCIATE PROFESSORS Kevin C. Galloway (Mechanical Engineering), W. Timothy Holman (Electrical and Computer Engineering)

ASSISTANT PROFESSOR OF THE PRACTICE Romina Del Bosque (Biomedical Engineering), David C. Florian (Chemical and Biomolecular Engineering)

COURSES OFFERED: DF

Industry 4.0, or the fourth industrial revolution, is rapidly changing how companies manage their supply chains and manufacture their products. New digital and physical technologies, including advanced materials, additive manufacturing, and software packages that employ machine learning to optimize both the geometry and function of parts and processes, have reached a level performance that enables their widespread integration throughout manufacturing operations. Digital fabrication is the process of converting ideas to physical products through computer-driven design and manufacturing. Every aspect of the design process can be simulated, from materials selection to the toolpaths used to manipulate those materials. Consequently, digital fabrication technologies more efficient manufacturing of prototypes and commercial parts. This minor is intended for students who are interested in 3D printing, computer aided design (CAD), and product development.

The minor in Digital Fabrication prepares students for this area by providing both classroom and hands-on instruction in advanced technologies used to prototype physical devices through computer-controlled design and manufacturing. Students will learn how to scale-up production of their prototypes through both traditional and additive-based manufacturing techniques. Students will gain experience through foundational courses for the minor and expand their application through electives often related to their major. The Vanderbilt makerspace ecosystem provides students in the minor with hands-on experiences that allow them to design, construct, and iterate prototype devices using in-house state-of-the-art equipment. This laboratory component enhances the competitiveness of students to both employers and graduate schools.

DIGITAL FABRICATION MINOR

The minor in digital fabrication requires 15 credit hours, distributed as follows:

1. Programming (3 hours): One of CS 1100, DS 1100, CS 1103, CS 1104, or CS 2201.
2. Prototyping Core (6 hours): DF 2100, CHBE 4200.
3. Elective courses (6 hours). To be selected from the following list of approved subjects, which may include no more than one (3 hour) ENGM course:

School of Engineering:

BME 2210: Biomaterial Manipulation

BME 3500: Biomedical Materials: Structure-Property Relationships and Applications

BME 3750: Low Resource Bioengineering

BME 3800: 3D Computer Drafting in Design

BME 4100: Lasers in Surgery and Medicine

BME 4250: Mobile Application Design for Healthcare

BME 4530: Synthetic Biology and Cell Design

CE 4211: Mechanics of Composite Materials

CE 4425: Building Information Modeling

CHBE 4840: Synthesis and Applications of 2D Nanomaterials

CHBE 4850: Semiconductor Materials Processing

CHBE 4870: Polymer Science and Engineering

CS 3258: Introduction to Computer Graphics

CS 3259: Computer Animation Design and Technology

CS 3270: Programming Languages

CS 3274: Modeling and Simulation

CS 4249: Projects in Virtual Reality Design

DF 3860: Undergraduate Research in Digital Fabrication

ECE 2123/2123L: Digital Systems

ECE 2218/2218L: Microcontrollers

ECE 4275: Microelectronic Systems

ECE 4354: Computer Vision

ECE 4375: Embedded Systems

ECE 4377: FPGA Design

ECE 4385: VLSI Design

ENGM 3300: Technology Assessment and Forecasting

ENGM 3600: Technology-Based Entrepreneurship

ME 1151: Laboratory in Machining

ME 2160: Introduction to Mechanical Engineering Design

ME 3202: Machine Analysis and Design

ME 3273: How to Make (Almost) Anything and Make it Matter

ME 4251: Modern Manufacturing Processes

College of Arts and Science:

ANTH 3867: Digital Archaeology

ARTS 1400: Ceramics

ARTS 2400: Ceramics II

CHEM 3630: Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modifications

CSET 3257: Virtual Reality Design

MHS 2240: Bionic Bodies, Disability Cultures

PHYS 2660: Experimental Nanoscale Fabrication and Characterization

Earth and Environmental Sciences

CHAIR John C. Ayers

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DIRECTOR OF GRADUATE STUDIES David J. Furbish

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PROFESSORS John C. Ayers, Ralf Bennartz, David J. Furbish, Steven L. Goodbred, Guilherme Gualda

ASSOCIATE PROFESSORS Larisa R. G. DeSantis, Jonathan M. Gilligan, Maria Luisa Jorge, Jessica L. Oster

ASSISTANT PROFESSORS Hiba Baroud, Simon A. F. Darroch, Ravindra Duddu, Kristen E. Fauria, Jesus Gomez-Velez, Neil P. Kelley, Lin Meng

RESEARCH ASSISTANT PROFESSORS Christopher P. Vanags

PRINCIPAL SENIOR LECTURERS Lily L. Claiborne, Daniel J. Morgan

COURSES OFFERED: EES

The Earth and environmental sciences are aimed at understanding Earth’s governing processes—how they operate and interact—as well as interpreting Earth’s dynamic history—its age and origin as recorded in rocks and

the landscape— and finally, at understanding how geological processes affect modern environmental and ecological systems, including humans. Among the natural sciences, ours is the quintessential interdisciplinary science, providing vital perspective on how Earth's physical and geochemical template simultaneously sustains and threatens life, and influences human interactions with Earth.

The Department of Earth and Environmental Sciences (EES) offers an integrated Earth and Environmental Sciences undergraduate major leading to the B.A. degree. Students majoring in EES take a core set of science courses with lab, computational, and field components, then propose a course plan that creates an area of concentration in solid Earth, Earth surface, or environmental science while maintaining breadth across the discipline. The comparatively small size of the faculty and student body allows many opportunities for faculty-student interaction. Students use the major as preparation for graduate study, for careers in environmental science, geology, and natural resource and energy management, and for related fields such as land use planning, teaching, conservation, business, law, or engineering.

Research programs in the department, which in many cases involve students, employ field, analytical, and experimental methods. A wide variety of Earth processes are investigated, ranging from the migration of fluids and generation of magmas in the Earth's crust, to the movement of mass and energy across land, ocean, and atmosphere, to the evolution of life and ecosystems, to the impacts of humans on the environment. Study areas, in addition to Tennessee, include the southwestern United States, the Pacific northwest, Florida, Colorado, Antarctica, South Asia, Brazil, Italy, Greenland, Peru, Namibia, the Bahamas, Australia, and New Zealand.

For students with primary interests in environmental issues, an EES major or minor can be an excellent foundation for future work in this field. Students are encouraged to pair the natural science training they will gain in Earth and Environmental Sciences with Climate and Environmental Studies, Communication of Science and Technology, Environmental Sociology, or other interdisciplinary or non-science focused programs to gain the full range of experience and skills desired.

Program of Concentration in Earth and Environmental Sciences

The EES major is designed to provide a solid grounding in the integrated Earth and environmental sciences while allowing flexibility in the particular focus. The major is organized into five parts, beginning with one of three introductory courses that serve as entry points. The second part involves three core courses that provide all majors with a common background in methods and ways of thinking in Earth and environmental sciences. At least one core course must be completed before students may enroll in the more advanced focus courses of part three. Also, prior to taking any focus courses, students must submit a course plan for parts three and four that explains their choice of advanced courses based on expressed goals and interests. The course plan should be designed in consultation with a faculty adviser and must be approved by the director of undergraduate studies. In most cases, students will also declare the major at this time. The third part of the major defines a focus in the general areas of solid Earth, Earth surface, or environmental science. A brief description of each focus and a list of most relevant courses are given below. The fourth part follows the focus and allows three qualified electives to pursue depth in the focus or broaden to include another area of concentration. The fifth component of the major is a 1 credit hour seminar that serves as a capstone for senior students. In addition to the major, qualified students may elect to participate in the Honors Program designed for highly motivated students who want to pursue research as undergraduates. Opportunities for research may be available to other students outside of the Honors Program.

At least 37 credit hours toward the major are required as follows:

1. Introductory Course (3+1 credit hours each): 1510/1510L, 1030/1030L, or 1081/1081L	4
2. Core Courses (3 or 4 credit hours each): 2510, 2550, and 2580* *Note:* Math 1100, 1201, or 1301 is prerequisite or corequisite for 2580. Math 1100 provides the basic calculus skills required for the EES major but does not qualify students for any more advanced math courses at Vanderbilt. Math 1301 is recommended for students interested in taking additional math courses or calculus-based physics that may be required by some graduate programs. *Students with physics credit may be able to replace this with a higher level physics-based EES course. Discuss with EES DUS before enrolling.	11
3. Focus Courses with Lab (4 credit hours each): Three of the following per the approved course plan: 3220, 3260, 3280, 3310, 3330, or 3340	12
4. Three electives, at least two at 4000 level (3 or 4 credit hours each): An additional 3000-level Focus Course, or 4233, 4283, 4300, 4420, 4440, 4550,4600, 4650, 4680, 4750, 4760, 4820, 4830, or 4891 *Note:* Does not include Directed and Independent Studies, Internship, or Senior Honors Courses: 3841, 3842, 3851, 3852, 3880, 3881, 4996, 4998, 4999	9–10
5. Senior Seminar: 4961	1
Total hours:	37-38

Additional supporting science and math courses, including at least one semester each of chemistry and physics, are highly recommended for the major and should be taken early in a student's academic career. Additional courses in chemistry, physics, math, computer science, and/or biological sciences are also recommended and may be required for admittance into graduate school or for employment as a scientist. Minors or double majors in other STEM fields are encouraged.

Students should discuss additional supporting sciences and math with their EES faculty adviser or the DUS, but recommended selections may include:

Chemistry (1601/1601L and 1602/1602L) Physics (1601/1601L and 1602/1602L)

Calculus (Math 1200/1201, 1300/1301, or higher)

Biological Sciences (1100/1100L, 1103, 1510/1510L, 1511/1511L, 2218, 2219, or 2238/2238L)

Options for Area of Focus

In-depth Earth and Environmental Sciences courses can be chosen to define a focus area within EES. Students should consult with their major adviser about choosing a focus area and associated course options. Students may also formulate an individualized focus area that may incorporate components of several areas to maintain breadth. All parts of the Earth and its environments are interconnected, and the integrated Earth and Environmental Science major allows students to create a comprehensive understanding of the cycling of energy and materials through Earth's four spheres (lithosphere, hydrosphere, atmosphere, and biosphere) while also developing some more specific expertise through a Focus. Further descriptions of these focus options and recommended courses can be found in the EES major handbook on the EES department homepage.

Solid Earth Focus

This focus augments the integrated Earth and environmental sciences core by further considering the physical and chemical structure of the Earth and the dynamic processes affecting these, as recorded in rocks and minerals. This includes aspects of geology, geochemistry, geophysics, and volcanology. Focus and elective

courses appropriate for Solid Earth include: 3260, 3330, 3340, 3865, 4300, 4420, 4440, 4550, 4600, 4830.

Earth Surface Focus

This focus augments the Earth and environmental sciences core by further considering interactions between Earth's land surface, oceans, and atmosphere, for example governing how rivers, mountains, coasts, or the climate operate and evolve with time. Earth surface systems also define the planet's critical zone that supports life and its ecosystems. Focus and elective courses appropriate for Earth Surface include: 3220, 3280, 3330, 3865, 4300, 4420, 4440, 4600, 4550, 4650, 4680.

Environmental Focus

This focus augments the Earth and environmental sciences core by further considering aspects of the hydrosphere, biosphere, atmosphere, and coupled human-environment systems, both present and past, through a lens of Earth's changing climate. Life on Earth impacts and is impacted by Earth's environments and is therefore central to this focus. Focus and elective courses most appropriate for Environmental include: 3220, 3280, 3310, 3480, 4238, 4300, 4440, 4480, 4650, 4680, 4820, 4890, 4750, 4760.

Honors in Earth and Environmental Sciences

The EES Honors Program provides research experience and mentoring in preparation for a career or graduate studies in Earth and environmental sciences. Interested students should apply to the undergraduate adviser for entry into the Honors Program fall semester, junior year. A grade point average of 3.3 or higher both cumulatively and in courses that count toward the EES major is required for admission to the Honors Program.

Working closely with a faculty adviser, students in the Honors Program complete a research project of interest to both the student and faculty member during the junior and senior years. In order to graduate with honors in EES, a student must: (1) maintain a 3.3 grade point average both in the EES major and cumulatively; (2) complete the required courses for the EES major; (3) complete Senior Honors Seminar (4996, 4997) and Senior Honors Research (4998, 4999); (4) satisfactorily present the results of his/her research in written form as a senior thesis to two members of the faculty and orally to students and faculty of the department.

Minor in Earth and Environmental Sciences

The minor in EES provides students with a broad background in Earth processes, systems, and history, and an introduction to environmental issues. This background is highly relevant to many different fields of endeavor. The minor does not fully prepare students for graduate studies or employment as Earth or environmental scientists, though it could do so paired with another relevant STEM major. Students should consult with the director of undergraduate studies about how the minor in EES fits with their career or graduate school interests.

The minor consists of at least five courses (at least 17 credit hours; EES 1510/1510L, 1030/1030L, and EES 1081/1081L each count as one course). Students are encouraged to choose courses based on their interests and career plans and to discuss course selection with the director of undergraduate studies. No more than two 1000-level courses count toward the minor. Two courses with labs are required; one must be numbered above 2000. No credit toward the minor is given for EES 3841–3842 or 3851–3852.

Licensure for Teaching

EES majors may choose a second major in science education which includes teaching licensure, a prudent choice if interested in teaching. Peabody offers a fifth-year master's program for science majors interested in teaching. Upon graduating with a B.A. in EES, EES majors in the fifth-year program would spend the next summer and academic year earning their M.Ed. and teaching licensure.

Students seeking teacher certification in science disciplines at the secondary level should refer to the chapter on Certification for Teaching in the Peabody College section of the Undergraduate Catalog. Please contact Professor Heather Johnson, coordinator of science secondary education, at heather.j.johnson@vanderbilt.edu for more

information.

Economics

CHAIR Kamal Saggi

VICE CHAIR Mattias Polborn

DIRECTOR OF UNDERGRADUATE STUDIES Rupinder Saggi

DIRECTOR OF GRADUATE STUDIES Brian Beach

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PROFESSORS, RETIRED Stephen Buckles, Diana N. Weymark

ASSOCIATE PROFESSORS Brian Beach, Andrea Moro, Joel Rodrigue, Lesley J. Turner

ASSISTANT PROFESSORS Peter Bils, Adam Blandin, Marcus Dillender, Malin Hu, Gregory Leo, Christopher Li, Michelle Marcus, Kathleen McKiernan, Analisa Packham, Sarah Quincy, Sarah Ridout, Mariia Titova, Matthew Zaragoza-Watkins, Ariell Zimran

PRINCIPAL SENIOR LECTURERS Ana Regina Andrade, Christina H. Rennhoff, Rupinder Saggi

SENIOR LECTURERS Kent Dolezal, Hojjatallah Ghandi, Heather Luea, Karim Nchare, Olani, Zaruhi Sahakyan

COURSES OFFERED: ECON

The Department of Economics offers an undergraduate major and minor in economics. Qualified economics majors may also elect to take graduate courses or participate in honors work.

The department participates with the Department of History in a concentration in economics and history. Other economics-related minors are discussed under the Undergraduate Business Minor.

Economics 1010 and 1020 are prerequisites to all courses numbered above 2000, except Economics 2220 which only requires Economics 1010.

Program of Concentration in Economics

The requirements for the major include completion of at least 33 credit hours in economics courses, including 1010, 1020, 1500 or 1510 (or Math 2820L with Math 2810 or Math 2820), 3012, 3022, and 3032 or 3035. At least 9 credit hours must be in courses numbered above 3035. At least 15 credit hours that count toward the economics major must be taken at Vanderbilt. Undergraduate Business Minor (BUSA) elective courses do not count toward the economics major.

Economics 1111 may be counted as an elective. No more than 3 credit hours of independent study may be included in the minimum 33 credit hours required for the major.

Mathematics Prerequisite

MATH 1201 (or MATH 1301) is a prerequisite for Economics courses numbered 3000 and above.

Minor in Economics

The minor in economics requires 21 credit hours, including 1010, 1020, 1500 or 1510 (or Math 2820L with Math 2810 or Math 2820), 3012, and 9 credit hours of electives. At least one elective must be numbered above 3015.

Students who complete either Economics 3032 or 3035 with Math 2820L and Math 2810 or Math 2820 as a prerequisite need not take Economics 1500 or 1510. Undergraduate Business Minor (BUSA) elective courses do not count toward the economics minor.

Honors Program

An honors program is available in economics. This program is designed for highly motivated students interested in doing independent research. Students who meet the College of Arts and Science's requirements for honors candidacy as set forth elsewhere in this catalog should consult the director of undergraduate studies no later than the fall term of their junior year. Honors candidates must complete 36 credit hours in economics, including the 18 credit hours of courses required of all economics majors. Honors candidates should complete 3032 or 3035 before senior year. In addition, the Honors Program requires completion of (1) Economics 3698 Junior Honors Research (1 credit hour), (2) Economics 3851–3852 Senior Thesis (6 credit hours), culminating in a written thesis, (3) Economics 4981–4982 Honors Seminar (2 credit hours), (4) 9 credit hours of electives including at least 6 credit hours in Economics courses above 3035. Honors candidates are required to write a senior thesis and to defend it in an oral examination. On satisfactory completion of this program, a student will graduate with honors or with highest honors in economics.

Program of Concentration in Economics and History

This is an interdisciplinary program split between Economics and History that provides a more focused program of study while requiring fewer credit hours than a double major in the two fields. The program consists of 45 credit hours of course work of which 9 credit hours are from a common economic history core and the remaining 36 credit hours are evenly divided between Economics and History. Students are expected to observe course-specific requirements in each department. The details are spelled out below under Economics and History.

Licensure for Teaching

Candidates for teacher licensure in economics at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Economics and History

The joint major in economics and history makes an important contribution to liberal education at Vanderbilt by helping students understand the origins and organization of modern society. It also provides a unique preparation for careers in business, the professions, and other fields by combining all the analytical tools of the regular economics major with history's emphasis on clear and effective writing and on developing skills in gathering, assessing, and synthesizing information. The program consists of 45 credit hours of course work: 9 credit hours in an economic history core, and an additional 18 credit hours in economics and 18 in history. Students declare their major through the Department of History office.

Note: One semester of calculus is a prerequisite for ECON 1500 and 1510. MATH 1201 (or MATH 1301) is a prerequisite for Economics courses numbered 3000 and above.

The description of the Concentration in Economics and History below will apply to students who matriculate at Vanderbilt in August 2018 and thereafter.

Course work for the major is distributed as follows:

Economic History Core (9 credit hours)

Three of the following courses, one of which must be an economics course above 3000:

HIST 1039, 1352, 1600, 1640, 1660, 1665, 2106, 2107, 2138, 2150, 2255, 2660, 2700, 2710, 3190, 3200, ECON 2150, 3150, 3160, RUSS 2810.

Note: ECON 3012 is a prerequisite for ECON 3150, and 3160.

Economics (18 credit hours)

ECON 1010, 1020, 1500 or 1510, 3012, 3022; one ECON course above 3022 not included in the economic history core.

Note: The following course sequences may be substituted for ECON 1500 or 1510: Option 1: MATH 2810, 2820L, and either ECON 3032 or 3035.

Option 2: MATH 2820, 2820L, and either ECON 3032 or 3035. In these cases, ECON 3032 or 3035 will also count as an elective.

History (18 credit hours)

No more than 3 credit hours of AP or IB credit in history courses may count toward this total.

1. History 3000W or 3980; must be taken by the end of the junior year. 3980 is limited to second-semester juniors who have been admitted to the Honors Program. Students entering the Honors Program who have already earned credit for 3000W will receive elective credit for that course.
2. History 4960 (prerequisite: History 3000W), or History 4980–4981 (available only to students in the Honors Program). *Note:* At the discretion of the director of honors and the director of undergraduate studies in history, a student who has earned credit for 4980 but does not take 4981 may be considered to have fulfilled the capstone requirement for the major.
3. Four other history courses. Electives may include any courses, not used to satisfy any of the above requirements, offered by the Department of History, including any courses listed for the history major.

Honors Program (9 more credit hours)

Students apply to the Honors Program in History in the first semester of the junior year.

54 credit hours: students will take the four-course honors sequence, HIST 3980, 4980–4981, 4999. Because HIST 4980–4981 satisfies the capstone requirement, honors students will not be required to take HIST 4960, though they may enroll for 4960 as an elective. Students will write an interdisciplinary thesis under the direction of an adviser from each department.

Education and Human Development at Vanderbilt (Peabody)

George Peabody College for Teachers, recognized for more than a century as one of the foremost independent colleges of teacher education, merged with Vanderbilt University in the summer of 1979 to become Vanderbilt University’s Peabody College of education and human development. Since then, Peabody College has retained its heritage while achieving new stature as a place where world-class research is conducted and translated into teaching, practice, policy, and service. Peabody's mission is characterized by practice-oriented academic programs, a strong service ethic, groundbreaking research, and a pressing concern for addressing social problems in domestic and international contexts.

The college’s faculty and students constitute a vibrant intellectual community answering pressing questions and expanding knowledge about PreK–12 and higher education, including special education; psychology, especially focused on families and children; the development of individuals and organizations; and educational administration, leadership, and policy. Peabody College understands the preparation of researchers, teachers, and leaders as among the most important things it does, and that building and sustaining an engaged academic community of learners is central to achieving its mission.

Peabody faculty and students engage in a broad spectrum of basic and applied research to generate new knowledge and translate that knowledge into practice. Current research findings inform classroom teaching at Peabody in every program. Moreover, Peabody faculty bring an interdisciplinary and entrepreneurial spirit to the research enterprise.

Working collaboratively, often through one of the college’s research centers, faculty and students publish and present their findings, apply them in real-world settings, and help to shape public debate about the nature and future of education and human development.

The college is devoted to enhancing opportunity in an increasingly diverse society. More than 1,900 students are enrolled at Peabody, with more than one-third of them in post-baccalaureate graduate or professional degree programs.

All teacher education programs are accredited by the Council for the Accreditation of Education Preparation (CAEP). Counseling programs are accredited by the Council for the Accreditation of Counseling and Related Education Programs (CACREP).

Centers and Outreach Efforts

For more information about Peabody College's Centers and Outreach Efforts, please see here: https://peabody.vanderbilt.edu/research/research-centers.

Next Steps at Vanderbilt University

Next Steps at Vanderbilt is a four-year, nonresidential certification program for students with intellectual and developmental disabilities, providing individualized programs of study in the areas of education, social skills, and vocational training. Next steps is a comprehensive transition program designated by the U.S. Department of Education. This status recognizes the program's merits and allows eligible students to apply for federal financial aid for tuition assistance. Learn more here: https://peabody.vanderbilt.edu/nextsteps.

Electrical and Computer Engineering

CHAIR Bennett A. Landman

ASSOCIATE CHAIR Robert A. Reed

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DIRECTOR OF GRADUATE STUDIES Richard Alan Peters II

DIRECTOR OF GRADUATE RECRUITING Jack H. Noble

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PROFESSORS Bharat L. Bhuva, Robert E. Bodenheimer Jr., Joshua D. Caldwell, Benoit M. Dawant, Mark Does, Philippe M. Fauchet, Daniel M. Fleetwood, Michael Goldfarb, William A Grissom, Weng Poo Kang, Gábor Karsai, Xenofon D. Koutsoukos, Bennett A. Landman, Akos Ledeczi, Lloyd W. Massengill, Sandeep Neema, Sokrates T. Pantelides, Robert A. Reed, Nilanjan Sarkar, Douglas Schmidt, Ronald D. Schrimpf, Janos Sztipanovits, Robert J. Webster III, Sharon M. Weiss

PROFESSOR OF THE PRACTICE Walter Collett

RESEARCH PROFESSORS Michael L. Alles, Theodore A. Bapty, Zhaohua Ding, James McBride, Arthur F. Witulski

ASSOCIATE PROFESSORS Audrey K. Bowden, Abhishek Dubey, Taylor Johnson, Richard Alan Peters II, Jason G. Valentine, Greg Walker, D. Mitchell Wilkes

RESEARCH ASSOCIATE PROFESSORS W. Timothy Holman, Jeffrey S. Kauppila, Brian D. Sierawski

ASSISTANT PROFESSORS David Braun, Catie Chang, Mona Ebrish, Dariot Englot, Yuankai Huo, Justus Ndukaife, Jack H. Noble, Ipek Oguz

RESEARCH ASSISTANT PROFESSORS Shunxing Bao, Christine McGahan, Kurt Schilling, David Smith

ADJOINT PROFESSORS Arnold Burger, William Hofmeister, Steven Kosier

ADJOINT ASSOCIATE PROFESSOR Pierre-Francois D'Haese

ADJOINT ASSISTANT PROFESSORS Shuren Hu, Arto Javaninen, Stephanie Weeden-Wright

ADJUNCT PROFESSORS Ashok Choudhury, Orest Glembocki, Roberg Magruder

ADJUNCT ASSOCIATE PROFESSOR John Hutson

ADJUNCT ASSISTANT PROFESSORS Amy Kauppila, Andrew L. Sternberg

ADJUNCT INSTRUCTOR John Beck

INSTRUCTOR Ashwaq Amat

POSTDOCTORAL RESEARCH SCHOLARS Effat Farhana, Andrew McNeil

COURSES OFFERED: ECE

The study of electrical and computer engineering has been primarily responsible for the information technology revolution that society is experiencing. The development of large-scale integrated circuits has led to the development of computers and networks of ever-increasing capabilities. Computers greatly influence the methods used by engineers for designing and problem solving.

The curriculum of the electrical and computer engineering major is multifaceted. It provides a broad foundation in mathematics, physics, and computer science and a traditional background in circuit analysis and electronics.

Several exciting areas of concentration are available, including photonics and nanomaterials, microelectronics, embedded computing, cyber-physical systems, signal and data processing and medical systems. Students receive an education that prepares them for diverse careers in industry and government and for postgraduate education.

Undergraduate Honors Program. With faculty approval, junior and senior students may be accepted into the Honors Program. To achieve honors status, the student must:

1. achieve and maintain a minimum GPA of 3.5.
2. complete 3 hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861) with final written report.
3. complete 6 hours of ECE program elective credit from the following list:

a. up to 3 additional hours of undergraduate research (ECE 3860, 3861 or CS 3860, 3861), or
b. Design Domain Expertise courses beyond the one course required by the program, or
c. 5000-level ECE or CS courses.

The diploma designation is Honors in Electrical and Computer Engineering.

Facilities. Electrical and computer engineering supports undergraduate laboratories emphasizing the principal areas of the disciplines: analog and digital electronics, microcomputers, microprocessors, microelectronics, and instrumentation. In addition, several specialized facilities are available for graduate research: the advanced carbon nanotechnology and diamond labs, the Institute for Software Integrated Systems, the Institute for Space and Defense Electronics, the Medical Image Processing Laboratory, the Center for Intelligent Systems and Robotics Laboratories, the Embedded Computer Systems Laboratory, and biomedical, biosensing, and photonics laboratories.

The work in electrical and computer engineering is supported by a variety of computers and networks, including the high-performance computing facilities of the Advanced Computing Center for Research and Education. Vanderbilt is one of the founding partners in the Internet II initiative.

Curriculum Requirements

The B.E. in electrical and computer engineering requires a minimum of 122 hours, distributed as follows:

1. Mathematics (18 hours). Required courses: MATH 1300, 1301, 2300, 2400, 2810.
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; PHYS 1601, 1601L, 1602, 1602L; MSE 1500, 1500L or CHEM 1602, 1602L.
3. Engineering Fundamentals (6 hours). Required courses: ES 1401, 1402, 1403, ES 2100W.
4. Culminating Design Experience (7 hours). Required courses: ECE 4950, 4951, 4959.
5. Electrical and Computer Engineering Core (21 hours). Required courses: CS 1100 or 1101 or 1104; CS 2201 or 2204; ECE 2112, 2112L, 2123, 2123L (or CS 2123, 2123L), ECE 2214, 3235, 3235L.
6. Electrical and Computer Engineering Electives (21 hours). To comprise:
    a. At least 15 hours selected from the Gateway courses and ECE and CS Depth courses listed below.
    b. other courses listed in the Electrical and Computer Engineering Areas of Concentration below, or ECE or CS courses numbered above 3000 (including ECE 3860, 3861 and CS 3860, 3861).

Additional requirements for (a) and (b) include:

- at least 9 hours completed in one of the four Areas of Concentration listed below.
- at least 6 additional hours completed in a second distinct Area of Concentration listed below.
- at least one Design Domain Expertise course as designated below taken before ECE 4951.
- courses with associated labs require completion of both the lecture and lab portions to count as Electrical and Computer Engineering Electives.
- courses count in only one Area of Concentration; they cannot be double counted

7. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.

8. Technical electives (12 hours).

    a. (6-12 hours). At least 6 hours must be taken from this list of approved engineering technical electives (excluding all School of Engineering courses numbered 2860); BME; CHBE (except 2150, 2900W); CE; CS (except 1000, 1101, 1103, 1104, 1151); ECE (above basic requirement in sections 5 and 6 above); ENGM 3010; ENVE; ES 3300; ME; MSE (except 1500, 1500L); NANO 3000; SC 3250, 3260
    b. (0–6 hours). Up to 6 hours may be taken from this list of optional technical electives: ENGM 2160, 2210, 3000, 3100, 3300, 3650, 4500; MSE 1500, 1500L (if CHEM 1602, 1602L is used for basic science requirement); Astronomy (except 1010, 1111, 2130); Biological Sciences (except 1111); Chemistry (except 1010, 1020, 1601, 1602, 1111); Earth and Environmental Sciences (except 1080, 1111, 2150); Mathematics 2410 and above; Neuroscience 2201, 3269, 4961; Physics above 2000; Psychology 2100, 3780

9. Open Elective (3 hours).

Electrical and Computer Engineering Areas of Concentration

	Photonics & Nanomaterials	Microelectronics	Embedded Computing & Cyber-Physical Systems	Signal, Image, Data, and Medical Systems
Gateway Coursest†	ECE 3233	ECE 3233	CS 3251 ECE 2218/2218L‡ ECE 2281/2281L‡	ECE 4356* ECE 4363
ECE and CS Depth Courses	ECE 4283 ECE 4284 ECE 4288* ECE 4334* ECE 4335	ECE 4267 ECE 4268 ECE 4275 ECE 4283 ECE 4284 ECE 4287 ECE 4289 ECE 4334* ECE 4335 ECE 4380* ECE 4385*	CS 3265 CS 3274* CS 4277 CS 4278* CS 4279* CS 4284* CS 4285 CS 4288* ECE 4257 ECE 4275 ECE 4356* ECE 4358* ECE 4371* ECE 4375/4375L‡* ECE 4377* ECE 4383‡ ECE 4385*	CS 3251 CS 4260 CS 4262 CS 4266* CS 4269* ECE 4252 ECE 4286 ECE 4353* ECE 4354*
Non-ECE and Non-CS Depth Courses	BME 4100 ME 4265 NANO 3000 PHYS 2210 PHYS 2660 PHYS 3640		ME 4271	BME 3302 BME 4400 BME 4420 ME 3204

†Gateway courses provide recommended background and/or prerequisites for the Area of Concentration Depth courses.

*Designates a Design Domain Expertise course.

‡Indicates a crosslisted course also offered by the Department of Computer Science.

Double majors have special curricula that require more than 122 hours and a different distribution of electives. See the ECE webpage or the ECE double major adviser for these curricula.

A double major in Electrical and Computer engineering and Biomedical Engineering is offered as a unitary BME-ECE curriculum, which is described in the Biomedical Engineering section of the catalog under its curriculum requirements. It requires a minimum of 130 semester hours.

Undergraduates in electrical engineering, including double majors in electrical and computer engineering, may apply the pass/fail option only to courses taken as open electives subject to the school requirements for pass/fail.

Specimen Curriculum for Electrical and Computer Engineering

		Semester hours	
		FALL	SPRING
SOPHOMORE YEAR			
MATH 2300	Multivariable Calculus	3	–
MATH 2400	Differential Equations with Linear Algebra	–	4
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CS 2201 or 2204	Program Design and Data Structures	3	–
ECE 2112, 2112L	Circuits and Laboratory	4	–
ECE 2123, 2123L	Digital Systems and Laboratory	–	4
ECE 2214	Analog Circuits and Systems	–	3
	Liberal Arts Core	3	3
	ECE Program Elective or Technical Elective‡	–	3
		17	17
JUNIOR YEAR			
MATH 2810	Probability and Statistics for Engineering	3	–
ES 2100W	Technical Communications	–	3
ECE 3235, 3235L	Electronics I and Laboratory	4	–
	ECE Program Electives‡‡	3	6
	Technical Elective	–	3
	Technical Elective or ECE Program Elective‡	3	–
	Liberal Arts Core	3	3
		16	15
SENIOR YEAR			
ECE 4950	Program and Project Management for ECE	3	–
ECE 4951	Electrical and Computer Engineering Design	–	3
ECE 4959	Senior Engineering Design Seminar	1	–
	ECE Program Electives‡‡	6	3
	Liberal Arts Core	3	–
	Technical Electives	3	3
	Open Elective	–	3
		16	12

‡CS 3251 (Intermediate Software Design) is recommended in spring of the sophomore year as preparation for advanced computer science courses, with a technical elective taken in fall of the junior year. Otherwise, students

may choose a technical elective in spring of the sophomore year and an ECE program elective in fall of the junior year.

‡‡As described in Electrical and Computer Engineering Degree Requirements section 6. At least one Design Domain Expertise (DE) course required prior to ECE 4951.

Minor in Electrical and Computer Engineering

The minor in electrical engineering is available to all students except those majoring or minoring in computer engineering or electrical and computer engineering. The electrical and computer engineering minor requires a minimum of 17 hours of courses, including the completion of all laboratory corequisites for courses selected for the minor, distributed as follows:

1. Programming: CS 1101 or 1104	3 hours
2. Digital Systems: (ECE 2123, 2123L or CS 2123, 2123L) or Computer Architecture: (ECE 2281, 2281L or CS 2281, 2281L)	4 hours
3. Circuits: ECE 2112, 2112L	4 hours
4. At least 6 additional hours of ECE courses numbered above 2000 (excluding ECE 3860, 3861)	6 hours
Total:	17 hours

Engineering Courses

Biomedical Engineering

Civil Engineering

Chemical and Biomolecular Engineering

Computer Science

Electrical Engineering and Computer Engineering

Engineering Management

Engineering Science

Environmental Engineering

Mechanical Engineering

Materials Science and Engineering

Nanoscience and Nanotechnology

Scientific Computing

Engineering Courses of Study

1000–1999: Lower-level introductory courses. Generally no prerequisite.

2000–2999: Intermediate undergraduate courses. May have prerequisite courses.

3000–4999: Upper-level undergraduate course. Usually have prerequisite courses.

5000+: Courses for graduate credit.

Bracketed numbers indicate semester hours credit, e.g., [3].

W symbols used in course numbers designate courses that meet departmental writing requirements.

Abbreviations

BME	Biomedical Engineering
CE	Civil Engineering
CHBE	Chemical and Biomolecular Engineering
CMPE	Computer Engineering
CS	Computer Science
DF	Digital Fabrication
ECE	Electrical Engineering and Computer Engineering
ENGM	Engineering Management
ES	Engineering Science
ENVE	Environmental Engineering
ME	Mechanical Engineering
MSE	Materials Science and Engineering
NANO	Nanoscience and Nanotechnology
SC	Scientific Computing

Engineering Education in a University Setting

Vanderbilt University School of Engineering is the largest and oldest private engineering school in the South. Classes offering engineering instruction began in 1879, and seven years later Engineering was made a separate unit with its own dean. The school's program emphasizes the relationship of the engineering profession to society and prepares engineers to be socially aware as well as technically competent.

The mission of the School of Engineering is threefold: to produce intellectual leaders, entrepreneurs, and innovators by recruiting the best students and providing them a top-notch education; to deliver scholarship of the highest caliber, published in the most visible venues, addressing important societal problems; and to be a leader in entrepreneurship and innovation, in Tennessee, the U.S., and globally.

The school strives to meet the undergraduate education portion of its mission by offering degree programs in fields of engineering relevant to the needs of society. An objective of these programs is to provide a technical education integrated with strong humanities, fine arts, and social sciences subject matter to provide the requisite foundation for lifelong learning. The availability of second majors and minors in subject areas in other schools and colleges of the university increases opportunities for engineering students to enhance their education by pursuing studies in the non-technical disciplines. Engineering students take close to 50 percent of their courses outside of the School of Engineering and associate daily with peers from other schools and colleges within the university.

Another objective is to prepare students who intend to enter engineering practice upon graduation and those who will continue their studies at the graduate level in engineering or in other professional fields, as well as those who intend to enter engineering practice upon graduation. To this end, our programs emphasize mathematics and engineering sciences with significant exposure to engineering design and hands-on laboratory experiences.

A large fraction of the student body is destined for management positions early in their working careers. To meet these students' needs, the Engineering Management program offers a well-integrated minor.

Students at all levels have the opportunity to work with faculty in the generation of new knowledge. Those planning for graduate studies and research are especially encouraged to participate in individual topics and research courses to fulfill that desire. Engineering students also participate in the university's Summer Research Program for Undergraduates.

Facilities

The School of Engineering is housed in five main buildings with several satellite facilities. William W. Featheringill Hall houses a three-story atrium designed for student interaction and social events, more than fifty teaching and research laboratories with the latest equipment and computer resources, and project rooms. The Engineering and Science Building is an eight-story state-of-the-art building that houses the Wond'ry at the Innovation Pavilion, the Frist Center for Autism and Innovation, numerous research labs, interactive classrooms, clean rooms, and space for students to work, study, and socialize. Olin Hall, which is attached to the Engineering and Science building, houses Chemical and Biomolecular Engineering, Mechanical Engineering, and Materials Science, several classrooms, and research and teaching laboratories. School administrative offices and several classrooms are located on the ground floor of the Science and Engineering Building in Stevenson Center, which also houses the Biomedical Engineering department on the 8th and 9th floors. Jacobs Hall, which flanks Featheringill Hall, contains laboratories, offices, and classrooms serving the Civil and Environmental Engineering, and Electrical and Computer Engineering departments. Labs, offices, and meeting spaces for Computer Science are also housed at 17th & Horton, a building that serves as a hub for Computer Science and Data Science. Several satellite facilities are also part of the Engineering School: the W. M. Keck Free-Electron Laser Center building, housing the labs and offices of the Biomedical Photonics Center; the Laboratory for Systems Integrity and Reliability (LASIR), an off-campus hangar-style facility dedicated to scaling up experiments to realistic and full size that houses a wind tunnel and military aircraft; the Vanderbilt Institute of Software Integrated Systems; and the Institute for Space and Defense Electronics.

In all its engineering programs, Vanderbilt recognizes the vital place of experimental and research laboratories in the learning experience. Laboratories are designed to provide the strongest personal contact between students and faculty members consistent with enrollment.

Well-equipped undergraduate laboratories are maintained by the Chemistry and Physics & Astronomy departments in the College of Arts and Science, which offers mathematics and basic science courses required of all engineering students. Graduate and undergraduate divisions of these departments maintain teaching and research facilities in the Stevenson Center for the Natural Sciences. Another supporting department, Biological Sciences, is housed in Medical Research Building III. Most classes in humanities and the social sciences are conducted in Buttrick, Calhoun, Furman, Garland, and Wilson halls.

Accreditation

All programs leading to the Bachelor of Engineering degree and the program leading to the Bachelor of Science in computer science are accredited as follows:

The Bachelor of Engineering degree program in biomedical engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Bioengineering and Biomedical and Similarly Named Engineering Programs.

The Bachelor of Engineering degree program in civil engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Civil and Similarly Named Engineering Programs.

The Bachelor of Engineering degree program in chemical engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Chemical, Biochemical, Biomolecular and Similarly Named Engineering Programs.

The Bachelor of Science program in computer science is accredited by the Computing Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and Program Criteria for Computer Science and Similarly Named Computing Programs. The accredited program in computer science is the primary major administered by the School of Engineering. Computer science added as a second major by students outside the School of Engineering is not an accredited program.

The Bachelor of Engineering degree program in electrical and computer engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The Bachelor of Engineering degree program in mechanical engineering is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org/, under the General Criteria and the Program Criteria for Mechanical and Similarly Named Engineering Programs.

Employment of Graduates

Of the recent Vanderbilt graduates with baccalaureate degrees in engineering, about 75 percent entered directly into professional practice. Twenty-five percent continued with graduate or professional education. Others pursued diverse careers or other interests. Additional information regarding the employment of engineering graduates is available on the School of Engineering's website and in the VU Career Center.

Supporting Organizations Vanderbilt Engineering Council

The Engineering Council is a student organization whose main goal is facilitating communication between administration, faculty, and students in the School of Engineering in addition to organizing activities in support of students in the school. Officers of the Engineering Council are elected by the engineering student body, and representatives from the professional societies complete the organization’s membership. While the council has no administrative power, it provides students with a voice in the decision- making process in the School of Engineering.

Professional Societies

The leading national engineering societies have chartered branches or student sections at Vanderbilt. These organizations are run locally by students with the help of a faculty adviser. Meetings are devoted to matters of a technical nature, including outside speakers, plant trips, and other subjects of interest to the membership.

Students are invited to attend meetings and join as they will find the work of the professional societies beneficial in orienting them in their careers.

The student professional societies are:

American Institute of Chemical Engineers (AICh.E)	National Society of Black Engineers (N.S.B.E.)
American Nuclear Society (ANS)	Society of Hispanic Professional Engineers (S.H.P.E.)
American Society of Civil Engineers (A.S.C.E.)	Society of Women Engineers (S.W.E.)
American Society of Mechanical Engineers (A.S.M.E)	Women in Computing
Biomedical Engineering Society	Women in Science and Engineering

Graduating seniors may join the Order of the Engineer, a society that recognizes the commitment of its members

to the profession of engineering.

English

CHAIR Jennifer Fay

ASSOCIATE CHAIR Anthony Reed

DIRECTOR OF UNDERGRADUATE STUDIES Mark Schoenfield

DIRECTOR OF CREATIVE WRITING PROGRAM Major Jackson

DIRECTOR OF GRADUATE STUDIES Candice Amich

PROFESSORS EMERITI Houston Baker, Kate Daniels, Paul Elledge, Lynn E. Enterline, Roy K. Gottfried, Chris Hassel Jr., Mark Jarman, Michael Kreyling, Lorraine López, Leah S. Marcus, John F. Plummer III, Hortense Spillers, Cecelia Tichi, Mark A. Wollaeger

PROFESSORS Jay Clayton, Colin (Joan) Dayan, Tony Earley, Jennifer Fay, Teresa A. Goddu, Major Jackson, Vera Kutzinski, Emily Lordi, Lorrie Moore, Dana D. Nelson, Bridget Orr, Anthony Reed, Nancy Reisman, Allison Schachter, Mark Schoenfield, Kathryn Schwarz, Rachel Teukolsky

ASSOCIATE PROFESSORS Candice Amich, Rick Hilles, Jessie Hock, Scott Juengel, Ben Tran

ASSISTANT PROFESSORS Ajay Batra, Lydia Conklin, Alex Dubilet, Shoshana Feldman, Huan He, Didi Jackson, ZZ Packer, Akshya Saxena

PRINCIPAL SENIOR LECTURERS Gabriel Briggs, Elizabeth Covington, Andrea Hearn, Roger Moore, Elizabeth Meadows, Justin Quarry

SENIOR LECTURERS Jeong Oh Kim, Judith Klass

RESEARCH PROFESSORS Jonathan Lamb

WRITERS IN RESIDENCE Lisa Dordal, Sheba Karim, Amanda Little, Sandy Solomon

COURSES OFFERED: ENGL

The Department of English offers three distinct programs that allow students to individualize their studies while acquiring the breadth of knowledge and skills of the traditional English major. The curriculum provides courses in the history of British and American literature, film, digital media, Anglophone literatures of other countries, literary theory, and expository as well as creative writing. These diverse courses reflect the interests of students and faculty and the expanding area of English literary study. Students use the concentration in English as a foundation for careers ranging from education, law, business, and government to public relations and the media industry--anywhere that analytic, reading, and writing skills are valued--and as preparation for postgraduate work in literature. The department also helps students become lifelong readers of literature and culture.

Programs in England, Scotland, Australia, and around the world offer opportunities for study and travel that enrich a student's education. The Gertrude Vanderbilt and Harold S. Vanderbilt Visiting Writers series annually sponsors public lectures, readings, and other occasions where English majors hear and meet celebrated poets, novelists, and critics. Many majors write for and serve on the editorial boards of campus publications including the *Hustler*, the *Vanderbilt Review,* a distinguished collection of creative writing, and *Vanderbilt Lives*, an annual publication of creative non-fiction by Vanderbilt Undergraduates. An English major listserv alerts students to employment opportunities, internships, and study abroad programs in addition to those offered through Vanderbilt University.

Program of Concentration in English and American Literature

Program I: Literary Studies (30 credit hours)

Students pursue a broad range of interests through a flexible approach to the study of literature. 30 total credit hours including:

1. 6 credit hours in History (literature before 1800)
2. 6 credit hours of Diverse Perspectives (ethnic American or Anglophone literature)
3. 18 additional credit hours of electives in English, chosen from the courses that count toward the major

A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the requirement in numbers 1, 2, and 3 above are described below under General Requirements and Advice for Majors and Minors in All Programs.

Program II: Creative Writing (30 credit hours)

Students develop their creative writing while acquiring an overview of English literature. 30 total credit hours including:

1. 12 credit hours of 3000-level creative writing workshops in at least two different genres (from among: Nonfiction 3210, 3220; Fiction 3230, 3240; Poetry 3250, 3260). Admission to these courses is by consent of instructor.
2. 3 credit hours in History (literature before 1800)
3. 3 credit hours in Diverse Perspectives (ethnic American or Anglophone literature)
4. 12 credit hours from courses that count toward the English major (see below), which may include one additional creative writing workshop (beyond the four required in number 1, above) or one course in another discipline (with approval of the director of undergraduate studies)

A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the requirement in numbers 2, 3, and 4 above are described below under General Requirements and Advice for Majors and Minors in All Programs.

Program III: Specialized Critical Studies (30 credit hours)

Students design their own specialized course of study with a descriptive name and develop a contract of courses for it.

30 total credit hours including:

1. 12 credit hours of course work concentrated in a particular period (e.g., nineteenth-century American), genre, or movement (e.g., the novel), an aspect of intellectual history (e.g., law and literature, literary theory), or other area of special interest. Up to 9 credit hours may be taken in courses from other departments relevant to the concentration. In consultation with a major adviser, each student selects specific courses, which are listed in a contract that is filed after the student has formally declared the major.
2. 6 credit hours in History (literature before 1800)
3. 6 credit hours in Diverse Perspectives (ethnic American or Anglophone literature)
4. 6 credit hours from any of the courses that count toward the English major.

A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the requirement in numbers 2, 3, and 4 above are described below under General Requirements and Advice for Majors and Minors in All Programs.

Minor in English: Literature

At least 18 credit hours of course work in English are required. These courses must include 3 credit hours from History (literature before 1800) and 3 credit hours of Diverse Perspectives (ethnic American or Anglophone literature). A course cannot be used to satisfy more than one requirement in the minor.

Minor in English: Creative Writing

At least 18 credit hours of course work in English are required. These courses must include three upper-level workshops (9 credit hours) in any genre (3210, 3220, 3230, 3240, 3250, or 3260).

General Requirements and Advice for Majors and Minors in All Programs

All courses numbered 2050 and above (except 4999) count toward the major. Additionally, students may elect to count one of the following 1000-level courses toward their major: 1111, 1210W, 1220W, 1230W, 1240, 1250W, 1260W, 1270W, 1280, 1290. English 3890, 3890W, 3892, 3892W, 3894, 3894W, and 3898 may be repeated for credit when the topics are different. The survey courses, 2310, 2311, 2316, 2316W, 2318, 2318W, 2319, and 2319W are recommended for sophomores to provide a background for advanced courses.

Note: A course cannot be used to satisfy more than one requirement in the major.

Courses that fulfill the ***History requirement*** (literature before 1800) include 2310, 2318, 2318W, 3310, 3314, 3316, 3318, 3330, 3332, 3335, 3335W, 3336, 3337, 3340, 3340W, 3346, 3348, 3360, 3361, 3364, 3370.

Courses that fulfill the ***Diverse Perspectives requirement*** (ethnic American or Anglophone literature) include 3650, 3650W, 3654, 3654W, 3658, 3662, 3662W, 3664, 3670, 3670W, 3674, 3678, and appropriate courses from other departments as approved by the director of undergraduate studies.

Courses that fulfill the ***Program II creative writing workshop requirement*** include 3210, 3220, 3230, 3240, 3250, 3260.

In addition, suitable sections of 3890, 3890W, 3892, 3892W, 3894, 3894W, 3746, 3898, 3898W, 4998, 4999, (as appropriate) and other courses may fulfill the categories listed. Detailed course descriptions appear on the Department of English website for the upcoming semester and are available in the department. Majors are required to consult with their advisers during registration to identify what specific requirements the courses offered in that semester might fulfill.

One course from another department, appropriate to the student’s course of study, may be counted toward the requirements of any program with permission of the director of undergraduate studies; for Program III, this course may be in addition to the 9 credit hours already allowed from other departments.

Honors Program

To graduate with honors in English, students must (a) complete all the requirements of the English major, with at least 6 credit hours in honors sections (an appropriate graduate seminar or seminar in a study abroad program may be substituted for one honors seminar); (b) 3 credit hours of 4998; (c) maintain at least a 3.4 grade point average overall and 3.6 in the major; (d) be admitted to the Honors Program in the spring of the junior year; (e) write a thesis (4999) and pass an oral examination about its subject in the spring of the senior year. For secondary education double-majors, EDUC 9700 can be substituted for 4999 with the consent of the director of undergraduate studies.

To comply with all requirements, every honors student will complete 33 credit hours. Exceptional achievement on the thesis will earn high honors. Majors who wish to apply to the Honors Program must be within 6 credit

hours of completing all AXLE requirements, must have made reasonable progress toward the major, and must have at least a 3.4 grade point average overall and 3.6 in the major. Applications are accepted in April of the junior year. Additional information is available from the director of undergraduate studies. Students need not be enrolled in the Honors Program to take honors sections. Honors sections are seminars open to any student beyond the freshman year who has completed the sophomore writing requirement of AXLE and has earned at least a 3.4 grade point average. Students are encouraged to enroll in honors sections prior to applying to the program.

Licensure for Teaching

Candidates for teacher licensure in English at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

European Studies

DIRECTOR Christoph Zeller and Meike G. Werner

PROFESSORS Robert Barsky, Michael Bess, Emily Greble, Christoph Zeller

ASSOCIATE PROFESSORS Ari Joskowicz, Letizia Modena, Michelle Murray, Meike Werner

VISITING ASSOCIATE PROFESSOR Alexander Schmidt

COURSES OFFERED: EUS

Program of Concentration in European Studies

Designed for students who seek to broaden their understanding of European societies and to prepare for international careers or advanced study, the Program in European Studies (EUS) offers disciplinary breadth as well as expertise in a specialty of students' choosing. Most EUS majors also participate in an approved study abroad program in Europe.

In consultation with an adviser in European Studies, students choose a focus and specific courses that will fulfill the requirements for the major. This focus can consist of a thematic or comparative topic (such as Central European literature or Law and Economics in the European Union) or the culture and society of a particular nation (such as France, Germany, Italy, Poland, Spain). In addition to the core requirements, majors take relevant courses in history, social sciences, and the humanities, as well as a foreign language of the student's choice.

The Program in European Studies sponsors special activities including a visiting lecture series, international symposia, and informal faculty-student luncheon seminars.

Required Core Courses (12 credit hours)

- EUS 2201, European Society and Culture or EUS 2203, The Idea of Europe (3 credit hours)
- EUS 4960, Senior Tutorial (3 credit hours) to write a senior thesis
- 6 credit hours in European Studies courses or equivalent approved by major adviser

Foreign Language Requirement (6 credit hours)

The foreign language requirement is to be satisfied in one of the following ways:

- 6 credit hours of course work at the intermediate level in one European language;
- course work through the beginner level in two European languages;
- demonstration of proficiency equivalent to either of the preceding options; or

- participation in one of the Vanderbilt intensive-language programs in Europe (students participating in Vanderbilt's predominantly English-language program in Europe must complete course work through the intermediate level in one European language, or demonstrate equivalent proficiency).

European languages recognized for the major include Albanian, Bulgarian, Czech, Croatian/Bosnian/Serbian, Danish, Finnish, French, German, Greek, Hungarian, Ladino (Judeo-Spanish), Italian, Norwegian, Polish, Portuguese, Romani, Romanian, Russian, Slovak, Spanish, Swedish, Turkish, Ukrainian, and Yiddish. Other languages may be approved by the major adviser.

Electives (12–18 credit hours)

The remainder of the 30 credit hours required for the major may be selected from the list of courses below or from among approved courses taken abroad. Students majoring in EUS are advised to select courses from the social sciences and humanities that complement their areas of special interest and their thematic focus.

Other Issues Relating to the Major

Normally, no more than 6 credit hours of work in 1000-level courses may be counted toward the major. However, students who have fulfilled their language requirements by demonstrating equivalent proficiency or through participation in a Vanderbilt approved study program in Europe may count up to two 1000- and/or 2000-level language courses in a European language toward their major.

Students seeking a second major may count a maximum of 6 credit hours of course work to meet requirements in both majors.

Honors Program

The Program in European Studies offers qualified majors the option of completing a portion of their major requirements in an Honors Program. Students engage in interdisciplinary reading, consultations with faculty, and research on the overarching theme of their program of concentration. To be admitted to the program students must have attained a minimum cumulative grade point average of 3.300 and a minimum grade point average of 3.300 in all courses that count toward the EUS major; identify an adviser for the honors thesis; submit a detailed description of their proposed program of study for approval by the director of EUS; complete 3 credit hours of independent research (normally EUS 4998); complete 3 credit hours of credit in EUS 4960, Senior Tutorial, that involves researching and writing a senior honors thesis of approximately fifty pages; successfully defend the honors thesis before a committee normally consisting of the adviser, the director of EUS, and another faculty member. Information concerning the Honors Program is available from the director of EUS. College regulations governing honors programs may be found in this catalog under Honors Programs, Special Programs for Arts and Science.

The Minor in European Studies

The EUS minor is a good complement to a major in anthropology, history, economics, literary studies, philosophy, and political science. It involves 18 credit hours of course work with concentration and distribution requirements similar to those for the major, but on a reduced scale. A background in a modern foreign language is highly recommended.

Students choose a thematic focus and take approved European content courses distributed as follows:

- EUS 2201, European Society and Culture, or EUS 2203, The Idea of Europe
- 6 additional credit hours selected from EUS-labeled courses (or approved substitute)
- 9 hours of topical courses on Europe, approved by the major adviser

The minimum number of credit hours required for the minor is 18.

Joint Major Option

The Program in European Studies collaborates with several departments to create joint majors in French and

European Studies, German and European Studies, Italian and European Studies, Russian, East European and European Studies, and Spanish and European Studies. These options are offered as collaborations between the Program in European Studies and the Departments of French and Italian, German, Russian, and East European Studies, and Spanish and Portuguese, and consist of 30 credit hours of course work each. Please see the detailed information on the joint major options under the departmental headings in this catalog. Students selecting one of these options will be advised by their major adviser in the language-and-culture department as well as their adviser in the Program in European Studies.

List of Approved Courses with European Content

Because the curricular offerings are constantly changing, prospective majors and minors should consult with the director about appropriate substitutes for courses listed below.

ANTHROPOLOGY: 3371, Social and Health Consequences of Pandemics.

CLASSICS: 3120, Humor, Ancient to Modern.

COMMUNICATION STUDIES: 3600, The Rhetorical Tradition.

ECONOMICS: 3160, Economic History of Europe; 3600, International Trade; 3610, International Finance.

ENGLISH: 1111, First-Year Writing Seminar (with appropriate topic); 2310, British Writers to 1660; 2311, British Writers 1660–Present; 3310, Anglo-Saxon Language and Literature; 3314, Chaucer; 3316, Medieval Literature; 3330, Sixteenth Century; 3332, English Renaissance: The Drama; 3335W, English Renaissance Poetry; 3336, Shakespeare: Comedy and Histories; 3337, Shakespeare: Tragedy and Romance; 3340, Shakespeare: Representative Selections; 3340W, Shakespeare: Representative Selections; 3346, Seventeenth-Century Literature; 3348, Milton; 3360, Restoration and the Eighteenth Century Early; 3361, Restoration and Eighteenth Century Late; 3364, The Eighteenth-Century English Novel; 3370, The Bible in Literature; 3610, The Romantic Period; 3611, The Romantic Period; 3614, The Victorian Period; 3618, The Nineteenth-Century English Novel; 3630, The Modern British Novel; 3634, Modern Irish Literature; 3640, Modern British and American Poetry: Yeats to Auden; 3681, Twentieth-Century British and World Drama; 3683, Contemporary British Literature; 3740, Critical Theory; 3890, Movements in Literature (with appropriate topic); 3890W, Movements in Literature (with appropriate topic); 3892, Problems in Literature (with appropriate topic); 3892W, Problems in Literature (with appropriate topic); 3894, Major Figures in Literature (with appropriate topic); 3894W, Major Figures In Literature (with appropriate topic); 3898, Special Topics in English and American Literature (with appropriate topic); 3898W, Special Topics In English and American Literature (with appropriate topic).

EUROPEAN STUDIES: 2201, European Society and Culture; 2203, The Idea of Europe; 2208, Conspiracy Theories and Rumors in European and

U.S. History; 2212, Revolutions and Post-Communisms in Eastern Europe and Eurasia, 1981-2010; 2213, Introduction to European Intellectual Traditions: Ancient and Medieval; 2214, Introduction to European Intellectual Traditions: Modern; 2220, Religion and Politics in Modern Europe, 1648–Present; 2222, Right-wing Populist Parties: Populism in Europe and Beyond; 2228. The Flight of Vulnerable Migrants to Europe; 2240, Topics in European Studies; 2260, European Cities; 2800, Pursuing Utopia: Social Justice and Romanticism in the Alps.

FRENCH: 2501W, French Composition and Grammar; 2614, Advanced Conversational French; 2891, Cross Cultural Communication; 3101, Texts and Contexts: Middle Ages to the Enlightenment; 3102, Texts and Contexts: Revolution to the Present; 3111, French for Business; 3112, Medical French in Intercultural Contexts; 3113, Advanced French Grammar; 3180, La Provence; 3181, Contemporary France; 3188, The Contemporary Press and Media; 3222, The Early Modern Novel; 3223, The *Querelles des femmes;* 3224, Medieval French Literature; 3230, French and Francophone Cinema; 3281, Provence and the French Novel; 3286, Cultural Study Tour; 3620, Age of

Louis XIV; 3621, Enlightenment and Revolution; 3622, From Romanticism to Symbolism; 3623, The Twentieth-Century Novel; 4025, From Carnival to the “Carnivalesque”; 4027, Emile Zola: From Naturalist Novels to Social Activism; 4029, Twentieth-Century French Literature; 4030, French and Italian Avant-garde; 4221, Literature of the Fantastic; 4232, Literature and Law; 4284, Art and Literature of the Nineteenth Century; 4285, Art and Literature of the Twentieth Century; 4320, French Feminist Thought: Literary and Critical; 4322, Adultery and Transgressions in Literature; 4430, Jews and Arab-Muslims in France; 4432, French Intellectual History.

GENDER AND SEXUALITY STUDIES: 1272, Feminism and Film.

GERMAN: 1111, First-Year Writing Seminar; 1482, Borders and Crossings: German Literature and Culture from Romanticism to the Present; 2310W, Introduction to German Studies; 2320, Conversation and Composition: Current Events; 2321, Conversation and Composition: Contemporary Culture; 2341, German Culture and Literature; 2342, German Culture and Literature; 2441, Great German Works in English; 2442, War on Screen; 2443, German Cinema: Vampires, Victims, and Vamps; 2444, German Fairy Tales from Brothers Grimm to Walt Disney; 2445, Nazi Cinema: The Manipulation of Mass Culture; 2552, Topics: 18th and 19th Century Culture and Literature; 2553, Topics: 20th and 21st Century Culture and Literature; 2554, Topics in Visual Culture and Media; 2570, The Holocaust; 3323, From Language to Literature; 3343, The Aesthetics of Violence: Terror, Crime, and Dread in German Literature; 3344, Women at the Margins: German-Jewish Women Writers; 3345, Love and Friendship; 3375, Art and Rebellion: Literary Experiment in the 1960s and 1970s; 3378, Dreams in Literature; 4458, Business German; 4535, German Romanticism; 4537, Women and Modernity; 4548, German Lyric Poetry—Form and Function; 4563, The Age of Goethe-Weimar 1775 to 1805; 4564, Pleasures and Perils in Nineteenth-Century Theatre; 4565, Revolutionizing Twentieth-Century Theatre; 4566, Nineteenth-Century Prose; 4567, The German Novel from Kafka to Grass; 4569, Writing under Censorship; 4574, Who Am I? German Autobiographies; 4576, Tales of Travel in Modern German Culture.

HISTORY OF ART AND ARCHITECTURE: 1100, History of Western Art I; 1110, History of Western Art II; 1111, First-Year Writing Seminar (with appropriate topic); 1500W, Impressionism; 2220, Greek Art and Architecture; 2270, Early Christian and Byzantine Art; 2285, Medieval Art; 2310, Italian Art to 1500; 2320W, The Italian Renaissance Workshop; 2325, Great Masters of the Italian Renaissance; 2330, Italian Renaissance Art after 1500; 2360, Northern Renaissance Art; 2362, Fifteenth-Century Northern European Art; 2390, Seventeenth-Century Art; 2600, Eighteenth- Century Art; 2620, Nineteenth-Century European Art; 2622, Neoclassicism and Romanticism; 2650, Nineteenth-Century Architecture: Theory and Practice; 2652, French Art in the Age of Impressionism; 2680, British Art: Tudor to Victorian; 2708, Twentieth-Century British Art; 2710, Twentieth- Century European Art; 2720, Modern Architecture; 2722, Modern Art and Architecture in Paris; 3224, Greek Sculpture; 3226, Greek Vases and Society; 3228W, Gender and Sexuality in Greek Art; 3274, Art and Empire from Constantine to Justinian; 3320, Early Renaissance Florence; 3320W, Early Renaissance Florence; 3332, Raphael and the Renaissance; 3334, Michelangelo’s Life and Works; 3334W, Michelangelo’s Life and Works; 3364W, The Court of Burgundy; 3366, 16th-Century Northern European Art; 3605W, French Art in the Age of Louis XV: From Rococo to Neoclassicism; 3790, Monumental Landscapes of Provence.

HISTORY: 1111-08, European Imperialism: Colonizer and Colonized in the Modern World; 1350, Western Civilization to 1700; 1360, Western Civilization since 1700; 1390, America to 1776: Discovery to Revolution; 1480, The Darwinian Revolution; 1500, History of Modern Sciences and Society; 1510, The Scientific Revolution; 1580, Crime and Punishment in Early Modern Europe 1400–1800 CE; 1584W, Foreigners and Citizens: Law and Rights in Modern Europe; 1600, European Economic History, 1000– 1700; 1700, Western Military History to 1815; 1730, The U.S. and the

Cold War; 1760, History of Christian Traditions; 2130, Russia: Old Regime to Revolution; 2135, Russia: The USSR and Afterward; 2220, Medieval and Renaissance Italy, 1000–1700; 2230, Medieval Europe, 1000–1350; 2250, Reformation Europe; 2260, Revolutionary Europe, 1789–1815; 2270, Nineteenth-Century Europe; 2280, Europe, 1900–1945; 2290, Europe since 1945; 2293, Muslims in Modern Europe; 2295, The Migrant Crisis in the Netherlands; 2300, Twentieth-Century Germany; 2310, France: Renaissance to Revolution; 2340, Modern France; 2380, Shakespeare’s Histories and History; 2382, The Rise of the Tudors; 2383, A Monarchy Dissolved? From Good Queen Bess to the English Civil War; 2385, The Real Tudors; 2410, Victorian England; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2595W, The English Atlantic World, 1500–1688; 2720, World War II; 2800, Modern Medicine; 2835, Sexuality and Gender in the Western Tradition to 1700; 2840, Sexuality and Gender in the Western Tradition since 1700; 3010, Pornography and Prostitution in History; 3120, Weimar

Germany: Modernism and Modernity, 1918–1933; 3150, Cities of Europe and the Middle East; 3180, Making of Modern Paris; 3230, The Art of Empire; 3260, Revolutionary England, 1603–1710; 3270, Religion and the Occult in Early Modern Europe; 3275, Religion and Popular Culture in Nineteenth-Century Europe.

ITALIAN: 1111-01, First-Year Writing Seminar: Italian History and Culture Through Cinema; 2203, Italian Journeys; 2501W, Grammar and Composition; 2614, Conversation; 3000, Introduction to Italian Literature; 3041, Italian Civilization; 3100, Literature from the Middle Ages to the Renaissance; 3240, Dante's *Divine Comedy;* 3242, Dante in Historical Context; 3340, *Famous Women* by Boccaccio; 3500, Baroque, Illuminismo, and Romanticism in Italy; 3600, Twentieth-Century Literature: Beauty and Chaos; 3640, Classic Italian Cinema; 3641, Contemporary Italian Cinema; 3642, Italian Visual Culture; 3701, City Fictions; 3702, Topics in Contemporary Italian Civilization; 3802, Contemporary Italian Society and Culture.

JEWISH STUDIES: 1002, Introduction to Jewish Studies; 1002W, Introduction to Jewish Studies; 1200, Classical Judaism: Jews in Antiquity; 1220, Jews in the Medieval World; 1240, Perspectives in Modern Jewish History; 2210W, Hebrew Literature in Translation; 2250W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors; 2250W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors; 2270, Jewish Storytelling; 2270W, Jewish Storytelling; 2320, Freud and Jewish Identity; 2340, Jewish Philosophy after Auschwitz; 2450, The Jewish Diaspora; 2640, Jews and Greeks; 3100, The Holocaust.

MUSIC LITERATURE AND HISTORY: 1220, The Symphony; 1230, Survey of Choral Music; 2200W, Music in Western Culture; 3220, Opera in the 17th and 18th Centuries; 3221, Opera in the 19th Century; 3222, Mahler Symphonies: Songs of Irony; 3223, Music in the Age of Beethoven and Schubert; 3224, Haydn and Mozart; 3225, Brahms and the Anxiety of Influence; 3227, Music in the Age of Revolution, 1789–1848; 3228, J.S. Bach: Learned Musician and Virtual Traveler; 3229, Robert Schumann and the Romantic Sensibility; 3230, Music and the Construction of National Identity; 3890, Selected Topics in Music History (with appropriate topic).

PHILOSOPHY: 1111, First-Year Writing Seminar (with appropriate topic); 1200, The Meaning of Life; 1200W, The Meaning of Life; 2102, Medieval Philosophy; 2103, Modern Philosophy; 2104 Nineteenth-Century Philosophy; 2109, Twentieth-Century Continental Philosophy; 2110,

Contemporary Philosophy; 2660, Philosophy of Music; 3005, Jewish Philosophy; 3007, French Feminism; 3009, Existential Philosophy; 3010, Phenomenology; 3011, Critical Theory; 3013, History of Aesthetics; 3014, Modernistic Aesthetics; 3103, Immanuel Kant; 3104, Kierkegaard and Nietzsche; 3105, Hegel; 3602, Philosophy of History; 3620, Political and Social Philosophy; 3621, Early Modern Political Philosophy; 3622, Contemporary Political Philosophy; 3623, Modern Philosophies of Law.

POLITICAL SCIENCE: 1101, Introduction to Comparative Politics; 1102, Introduction to International Politics; 1103, Justice; 2202, Ancient Political Thought; 2203, History of Modern Political Philosophy; 2210, West European Politics; 2220, Crisis Diplomacy; 2221, Causes of War; 2223, European Political Economy and Economic Institutions; 2225, International Political Economy; 2226, International Law and Organization; 2274, Nature of War; 3211, The European Union; 4238, Comparative Political Parties.

PORTUGUESE: 2203, Intermediate Portuguese; 3301, Portuguese Composition and Conversation; 3892, Special Topics in Portuguese Language, Literature, or Civilization (with appropriate topic).

RELIGIOUS STUDIES: 1111, First-Year Writing Seminar (with appropriate topic); 1820, Religion, Sexuality, Power; 2210W, Constructions of Jewish Identity in the Modern World; 2940, Great Books of Literature and Religion; 3229, The Holocaust: Its Meanings and Implications; 3316, Christianity in the Reformation Era; 3940, The Nature of Evil; 3941, Religion, Science, and Evolution; 4834, Post-Freudian Theories and Religion; 4835, Freudian Theories and Religion; 4836, The Religious Self according to Jung.

RUSSIAN: 1111, First-Year Writing Seminar; 1500, Introduction to Russian and East European Studies; 1874, Russian Fairy Tales; 1910W, 19th Century Russian Literature; 1911W, 20th Century Russian Literature; 2210, Russia Today: Politics, Economics, and Culture; 2230, Russia at War; 2273, Russian Science Fiction; 2310, Survey of Russian Literature in English Translation; 2311, Survey of Russian Literature in English Translation; 2434, The Russian Cinema; 2435, Leo Tolstoy: *Anna Karenina* and Other Masterpieces; 2436, Tolstoy's *War and Peace*; 2438, Dostoevsky's Major Novels: Philosophy and Aesthetics; 2537, Vladimir Nabokov; 2639, The Story of Siberia; 2745, Art After Zero: The Russian Avant-Garde; 2800, Viewing Communism in Eastern Europe.

SOCIOLOGY: 3851, Independent Research and Writing (with appropriate topic); 4961, Seminars in Selected Topics (with appropriate topic).

SPANISH: 1111-03, First-Year Writing Seminar: Travel Matters; 2990, Images of the Feminine in Spanish Cinema; 3301W, Intermediate Spanish Writing; 3302, Spanish for Oral Communication through Cultural Topics; 3325, The Way of Saint James; 3340, Advanced Conversation; 3345, Spanish for Business and Economics; 3355, Advanced Conversation through Cultural Issues in Film; 3360, Spanish Civilization; 3365, Film and Recent Cultural Trends in Spain; 4340, History of the Spanish Language; 4345, The Languages of Spain; 4400, The Origins of Spanish Literature; 4405, Literature of the Spanish Golden Age; 4410, Spanish Literature from the Enlightenment to 1900; 4415, Spanish Literature from 1900 to the Present; 4440, Development of the Short Story; 4445, Development of the Novel; 4450, The Contemporary Novel; 4455, Development of Drama; 4465, Theory and Practice of Drama; 4470, Development of Lyric Poetry; 4475, Contemporary Lyric Poetry; 4620, Love and Honor in Medieval and Golden Age Literature; 4640, *Don Quixote;* 4670, Spanish Realism; 4690, Alterity and Migration in Spain.

Financial Information

Tuition for undergraduates for the 2023/2024 academic year is $61,618 ($30,809 a semester). A fee of $1,100 is charged for students enrolled in the School of Engineering (in addition, freshmen entering the School of Engineering are required to own a laptop computer, with an estimated cost of $1,500). Freshman music majors in the Blair School of Music are charged a one-time technology equipment fee of $598. A full-time undergraduate student takes 12 to 18 hours. Students taking more than 18 hours per semester are charged $2,567 per hour for each extra hour. Students who, for approved reasons, enroll for fewer than 12 hours are charged $2,422 per hour, with a minimum tuition charge of $2,567 per semester. The $400 deposited with the Office of Undergraduate Admissions when the student is accepted is applied to the bill for the first semester.

Undergraduate students are required to purchase Vanderbilt-sponsored health insurance unless the student provides evidence of having comparable coverage that is fully compliant with the Affordable Care Act and all state and federal mandates. For Fall 2023, internationals students studying outside of the United States will able to complete a form to waive this coverage. International students studying in the United States may be eligible for a waiver if studying outside of the state of Tennessee. International students studying within the state of Tennessee must purchase the Vanderbilt-sponsored insurance. For the 2023-2024 year, the cost of the Vanderbilt health insurance plan is $2,397 for domestic students and $3,975 for international students.

Estimate of Expenses

Basic expenses (excluding travel and personal expenses) should be approximately $89,590 a year, itemized as follows:

Tuition (2023/2024)	$51,618
Room and board (1st year estimate)	$21,054
Student service fees (2023/2024)	$1,554
Student health fee (2023/2024)	$774
Books and supplies (estimate)	$1,194
Personal Expenses (estimate)	$3,396

Other Academic Fees

Application fee	$50
First-Year fee	$980
Residential College fee (residential college residents only)	$824
Engineering fee	$1,100
Blair technology equipment fee (one-time fee for freshman music majors)	$598
Late registration fee	$30
Senior-in-absentia minimum semester tuition charge (hourly rate)	$2,567
Credit by departmental examination fee	$50
Transcript fee (one time only)	$100

Students who have not registered by the published dates may be subject to late registration fees.

Registration dates are published in the Academic Calendars.

Financial Information: Fraternity and Sorority Membership

There is a financial commitment associated with joining a fraternity or sorority. The costs go toward inter/national fees, chapter operating expenses, and social functions. Financial obligations differ for fraternity and sorority members and among individual chapters. New members can expect to pay higher dues their first semester of membership. Dues for Interfraternity Council (IFC) men and Panhellenic women range from $750 to $1,500 per semester. Initiation fees for National Pan-Hellenic Council (NPHC) and Intercultural Greek Council (IGC) chapters range from $500 to $1,500 and continuing dues range from $100 to $500 each year. Additional costs throughout the semester may be for meal plans, conference attendance, philanthropic contributions, pictures, gifts, parties, T-shirts, etc. Chapter fees are paid directly to the fraternity or sorority. There are payment plans available to students, as well as scholarships within the individual chapters and also may be available at the council-level. Many chapters participate in the Facility Management Program, and non-resident members pay $322 each semester, charged to their student account, for the maintenance and upkeep of the chapter house. In addition, some fraternities pay an additional renewal fee which is deposited into their on-campus account to help pay down loans or create a savings account for future projects on the house.

Financial Information: Need-Based Financial Aid

Vanderbilt is committed to accessibility and affordability for all admitted and enrolled students. Grants, scholarships, and work opportunities are available to eligible students who apply for assistance and have demonstrated financial need. Beginning in the fall of 2009, financial aid packages offered to incoming and current undergraduate students no longer included need-based loans. While continuing to meet the full demonstrated need of all eligible students, this expanded aid initiative, Opportunity Vanderbilt, announced in October 2008 provides increased amounts of need- based grants and/or scholarships (gift assistance) to replace need-based loans that would have otherwise been offered to meet a student's demonstrated financial need.

Demonstrated financial need is the difference between the cost of attending Vanderbilt and the amount that students and their families are expected to contribute toward that cost. The amount of aid to fully meet each student's demonstrated financial need is determined annually on the basis of current financial information required/provided on relevant application forms.

Application Procedure

Prospective students need to complete a Free Application for Federal Student Aid (FAFSA) and a College Scholarship Service PROFILE. The FAFSA may be completed online at fafsa.ed.gov. Students may complete the CSS PROFILE online at collegeboard.org. The student must submit the FAFSA and PROFILE no later than February 1 of the senior year in high school. Further information regarding the application process is available from the Office of Student Financial Aid and Scholarships at vanderbilt.edu/financialaid.

Students must reapply for financial aid each year by submitting a CSS PROFILE and the FAFSA. Applications are available October 1 of each year. Renewal applicants must be in good standing and making satisfactory academic progress in order to continue receiving federal and institutional student aid funds. Renewal of university need-based assistance requires a minimum cumulative GPA of 2.0 for the sophomore, junior, and senior years. The priority consideration date for filing renewal applications is April 15.

Financial Aid for Early Decision Applicants

Early Decision applicants seeking financial aid must complete the FAFSA and College Scholarship Service PROFILE to be considered for Vanderbilt need-based grant assistance. The FAFSA may be completed online at fafsa.ed.gov. Students may complete the CSS PROFILE online at collegeboard.org. Early Decision I applicants should complete the CSS PROFILE no later than November 7 of the senior year in high school. Early Decision II applicants should complete the CSS PROFILE process no later than January 2 of the senior year in high school. Students will receive an estimate of their eligibility for financial aid with their offer of admission.

Federal Title IV Aid

Financial aid is available from several federal Title IV student financial aid programs. Any citizen or eligible non-citizen of the United States who is accepted for admission and meets Title IV eligibility guidelines is eligible to participate. This aid may be renewed annually by students who continue to qualify if they are in good academic standing and are making satisfactory academic progress in accordance with standards prescribed by the U.S. Department of Education. (See Satisfactory Academic Progress.)

The FAFSA establishes eligibility for participation in federal aid programs. The loan programs also require completion of loan applications, entrance counseling, and/or promissory notes. Applicants should contact their state agencies for information regarding state aid programs and application procedures.

Vanderbilt participates in the following federal student financial aid programs:

Federal Pell Grant Program

Federal Supplemental Educational Opportunity Grant Program (FSEOG) Federal Work-Study Program (FWSP)

Federal Direct Loan Program

Federal Direct Parent Loan for Undergraduate Students (PLUS)

Satisfactory Academic Progress Standards for Undergraduate Students

Academic progress for students receiving Vanderbilt University (institutional) need-based and/or federal Title IV financial assistance will be reviewed at the end of each academic term. Students must be meeting progress standards as defined by the Office of Student Financial Aid and Scholarships. These standards may be stricter than those defined in the academic standards applied by each of the individual undergraduate schools.

Institutional need-based aid assistance, including Vanderbilt need-based grants and scholarships, and federal Title IV financial aid are awarded for the academic year as determined by eligibility criteria for each financial aid program. Renewal and continuation of awards will be contingent upon maintaining satisfactory academic progress (SAP). The undergraduate requirements below are separate from the Academic Eligibility Policy required of all undergraduate students. Students must obtain a minimum grade point average outlined below. We realistically anticipate that the level of academic performance for each student will be higher than the minimum required cumulative GPA for renewal of Vanderbilt and federal financial aid programs. Students must successfully complete at least 2/3 (67%) of all credit hours attempted (Completed Hours / Attempted Hours = Completion Rate). Students must also complete their degree requirements within 150% of the length of your academic program for Title IV eligibility. For example: Arts and Science degrees require 120 completed credit hours, meaning the maximum timeframe is 180 attempted credit hours.

Satisfactory Academic Progress Standards

Grade Level	Cumulative GPA	Required earned credit hours
Freshman	1.8	0-23
Sophomore	1.8	24
Junior: Peabody and A&S	2.0	54
Junior: Blair and Engineering	2.0	54
Senior: Peabody and A&S	2.0	84
Senior: Blair and Engineering	2.0	86

All recipients who enroll full-time are expected to earn a minimum of 12 credits per semester.

Note: A reported grade of *I* or *M* are calculated as a zero grade point. The student is responsible for notifying the Office of Student Financial Aid if an earned grade is later received. Credit hours for a reported *W* are included in Attempted Hours.

Financial Aid Warning

For students who are making satisfactory progress, the award commitment for the subsequent year will normally be made for the entire academic year. For students who fail to complete the required credit hours within the specified time frame and/or who fail to maintain the minimum GPA, the student will receive a warning and the financial aid commitment will be made for one subsequent semester only. Further review will be undertaken at the end of that semester. If the student fails to complete the required credit hours and/or fails to maintain the minimum GPA within the subsequent semester, institutional and/or federal financial aid will be **suspended**.

Appeal Procedures

Any student whose institutional and/or federal Title IV student aid is **suspended** due to unsatisfactory academic progress may submit an appeal for reinstatement of such assistance to the Office of Student Financial Aid and Scholarships. The appeal for reinstatement should include the following elements:

- An explanation of extenuating circumstances, such as injury, illness, death of a relative, or other special

circumstance as to why you failed to meet satisfactory academic progress
- An explanation of what has changed that will now allow you to demonstrate satisfactory academic progress at the end of the next
- Supporting documentation from medical doctors, advisers, psychologists, , to verify the information you are including in your personal statement. Failure to provide information may result in your appeal being denied.

The student will be notified of the appeal approval or denial and if eligibility for institutional and/or federal financial aid funds will be reinstated for one additional semester on a **probationary** basis.

Financial Aid Probation

At the end of a **probationary** semester, students must then meet Satisfactory Academic Progress for continued eligibility of financial assistance. If a student fails to meet Satisfactory Academic Progress all institutional and/or federal Title IV financial aid will be **suspended**. A student may make a subsequent appeal for continuation of such assistance to the Office of Student Financial Aid and Scholarships. A student's submitted appeal after a Probation status will be reviewed by an Institutional Appeal Committee. If it is determined that the student's failure to meet academic progress was the result of illness, death in the family, or other exceptional or mitigating circumstances, those factors will be considered in determining whether or not eligibility for federal and/or institutional student aid funds can be reinstated for one or more semester(s) while following a prescribed *Academic Plan* as defined by the Institutional Appeal Committee.

Academic Plan

Students must meet the standards set forth in an Academic Plan that has been established to ensure that satisfactory academic progress will be met by a specific point in time in order to continue receiving institutional and/or federal Title IV financial assistance. Students who fail to earn the minimum credit hours and GPA specified in their established *Academic Plan* will have all financial assistance **suspended** until the academic deficiency is corrected.

Reinstatement of Institutional and/or Federal Title IV Assistance

If students fail to progress as outlined above, they will not be eligible to receive further aid and will be notified that they may appeal for reinstatement of institutional and/or federal aid funds in any following/subsequent semester **after** demonstrating progress toward earning their degree by improving the cumulative GPA to a 2.0 and/or credit hour completion rate so that they again meet the minimum requirements. It will be the responsibility of the student to contact the Office of Student Financial Aid and Scholarships to request the reinstatement of his/her institutional and/or federal assistance.

Maximum Aid Eligibility

Vanderbilt University (institutional) need-based assistance: A maximum time frame of four years (eight semesters or its equivalent) of full-time enrollment is established for attainment of a baccalaureate degree when determining eligibility for the receipt of institutional financial aid. Terms enrolled and credits earned at prior colleges/universities and accepted toward the student's undergraduate degree may be counted toward the maximum time frame for Vanderbilt financial assistance.

Federal Title IV assistance: A maximum time frame of 150% of the required credit hours to receive a degree or six years (twelve semesters or its equivalent) of full-time enrollment is established for attainment of the baccalaureate degree when determining eligibility for the receipt of funds through federal Title IV student financial aid programs. Credit hours earned at prior colleges/universities and accepted by Vanderbilt University will be included in the quantitative evaluation and maximum time frame evaluation.

Merit-based Financial Aid

Each year Vanderbilt awards merit-based scholarships to first-year applicants who demonstrate exceptional accomplishment and intellectual promise. These students represent the top 1 percent of all freshman applicants to Vanderbilt, and with the limited number of merit scholarships available, the selection process is very competitive. Additional information regarding the availability of merit-based scholarships and the application process can be found at vanderbilt.edu/scholarships.

Student Employment

A primary source of employment opportunities for students interested in part-time on- or off-campus employment is through access to an online job bank, HireADore. Many university, medical center, and off-campus employers post their open positions on HireADore at appropriate times throughout the year. The Federal Work Study (FWS) Program is a Federal Title IV program and eligibility for it is determined upon completion of the Free Application for Federal Student Aid (FAFSA) and other required application materials. Vanderbilt has positions available, on a limited basis, for both FWS and non-FWS eligible students. All students hired into on-campus positions will need to complete the federally required I-9 work authorization paperwork/process. More information may be found at vanderbilt.edu/studentemployment or by calling (615) 343-4562.

Financial Information: Payment of Tuition and Fees

Tuition, fees, and all other university charges incurred prior to or at registration are due and payment must be received by August 31 for the fall semester and December 31 for the spring semester. If courses are added AFTER the initial billing period, it is the student's responsibility to contact the Office of Student Accounts for due dates and amounts related to tuition in order to avoid any holds and/or late payment penalties. All other charges incurred after classes begin are due and payment must be received in full by the last business day of the month in which they are billed to the student. If payment is not made within that time, Commodore Cash may not be available and your classes may be canceled. Visit vanderbilt.edu/stuaccts for payment options.

Students/Guarantors will be responsible for payment of all costs, including reasonable attorney fees and collection agency fees, incurred by the university in collecting monies owed to the university. The university will assess a $25.00 fee for any check or e-payment returned by the bank and reserves the right to invoke the laws of the State of Tennessee governing bad check laws.

E-Billing and Access to a Student's Vanderbilt Account

Vanderbilt exclusively uses convenient and secure electronic billing (e-bills) for student account charges. **Students may need to take action** to enable parents, guardians, and other "invited payers" to receive e-bill notices and access to the e-bill website. Students may access their online invoices from their YES landing page at yes.vanderbilt.edu. Once they have signed in to YES, they may view invoices under the Billing Portal link.

Students are responsible for granting access to parents, guardians, or other payers who should receive email billing notifications. To do this, students log in to YES and click the "billing portal link." On your CashNet Account page, click "My Account" in the side bar, scroll to the section that reads "Payers" and click "Send a payer invitation," input the name of the payer you would like to add and their email address, click "Send Invitation." The logon and temporary password will be sent to your authorized payer in an email.

Any month in which there is activity on the student's account, an e-bill will be generated and an email notification sent to the student's Vanderbilt email address, as well as to the email addresses of others they have invited. The email notification will have the subject line "Your E-Bill Is Now Available for Viewing" and will contain a link to the secure e-bill website.

Payments may be made electronically, or for those wishing to mail a payment, a payment coupon can be printed. When an electronic payment is made, a confirmation email will be sent. **It remains the responsibility of the student to ensure that bills are paid on or before the due date.**

The Office of Student Accounts can be contacted at (615) 322-6693, toll-free at (800) 288-1144, or via email at student.accounts@vanderbilt.edu. For additional information, please visit the Student Accounts website at vanderbilt.edu/stuaccts.

Refund of Tuition

University policy for the refund of tuition and housing charges provides a percentage refund based on the time of withdrawal. Students who withdraw officially or are dismissed from the university for any reason may be entitled to a partial refund. Students who register for more than 18 hours and later reduce their registration to 18 hours or fewer may be entitled to a partial refund of the extra tuition for hours over 18. Fees are nonrefundable. The refund schedules may be viewed at vanderbilt.edu/stuaccts.

Tuition Refund Insurance is offered through the Office of Student Accounts. This elective plan provides coverage for tuition and housing in the event a student withdraws from school due to medical reasons. Go to collegerefund.com for more information or to apply online.

Payment Options

Direct Payment: Tuition, fees, and all other charges are paid directly to the university. Payment for the fall semester is due by August 31. Payment for the spring semester is due by December 31. Students can pay online after viewing their e-bill at vanderbilt.edu/stuaccts. There is no further action required for this option.

Interest-Free Monthly Payment Plan: Students can spread payment over five monthly installments for each semester (fall and spring), interest free, by enrolling in the VANDYPlan, currently administered by Higher One. The deadline to enroll in the VANDYPlan is August 31 for the fall semester (payments begin May 15) and December 31 for the spring semester (payments begin October 15).

The current estimated charges for the academic year are available at vanderbilt.edu/stuaccts to assist students in determining their annual expenses. For further information, please contact the Office of Student Accounts at (615) 322-6693 or (800) 288-1144, or via email at student.accounts@vanderbilt.edu.

Late Payment of Fees

All charges not paid by the specified due dates will be assessed a late payment fee of $1.50 on each $100 owed (minimum late fee of $5).

Financial Clearance

Transcripts (official or unofficial) will not be released until the account has been paid in full. Diplomas of graduating students will not be released until all indebtedness to the university is cleared.

Student Services Fee and Identification Card

All degree-seeking undergraduate students pay a student services fee that entitles them to admission to certain athletic, social, and cultural events and to subscription to certain campus publications. Specific information on these fees is published annually in the Student Handbook. The undergraduate student's identification card will admit students to university activities and the David Williams II Student Recreation and Wellness Center. It is also used as a library card and to stamp other documents. The card should be carried at all times and be returned to the university if the student withdraws for any reason.

Financial Information: Transcripts

Official academic transcripts are supplied by the Office of the University Registrar on authorization from the student. Transcripts are not released for students with financial or other university holds.

Financial Information: University General Medals, Prizes, and Awards

Also see the Honors chapters in the College of Arts and Science, Blair School of Music, School of Engineering, and Peabody College sections of this catalog for listings of additional awards and prizes.

THE JESSICA ACESTE AND ELIZABETH BEALE RIPPLE IN THE POND AWARD was established in 2001 by Mr. and Mrs. George G. Strong through the Strong Family Foundation to reward an undergraduate student in any area of the university for random acts of kindness. The award was created to express the extreme gratitude of Mr. and Mrs. Strong in recognition of the assistance and care that their daughter, Meredith, received from her friends and the Vanderbilt community as she was stricken with meningococcal meningitis. Physicians credit the quick action taken by Meredith's classmates and Vanderbilt personnel with saving her life.

THE CHARLES FORREST ALEXANDER PRIZE IN JOURNALISM was endowed in 1982 by friends of Mr. Charles Forrest Alexander, B.A. 1950, who died in 1976. As a student, he was editor of the *Commodore, V Book,* and a staff member of the *Hustler*. The fund provides support for an annual prize to be awarded to a student who has achieved distinction in journalistic projects at Vanderbilt University.

THE GREG A. ANDREWS CIVIL ENGINEERING MEMORIAL AWARD was established in 1969 by James M. Andrews, Sr. to support a senior in civil engineering who has made the greatest progress and who plans to pursue graduate study in environmental and water resources engineering at the School of Engineering. Donor established the fund to honor the memory of his son, Greg, a junior at Vanderbilt who was fatally injured in an auto accident.

THE THOMAS G. ARNOLD FUND was established in 1988 by multiple donors to provide an award for the best research/design project completed by a senior student in the Biomedical Engineering Department at the School of Engineering. The fund was established by family, colleagues, and other friends of Mr. Thomas Arnold Jr., G 1956, in recognition of his long and distinguished service to Vanderbilt from 1952 until his retirement in 1989. Mr. Arnold died in 1989.

THE DAN BARGE JR. AWARD IN CIVIL ENGINEERING was established in 2011 by multiple donors to recognize a junior civil engineering student who exhibits outstanding academic performance and dedication to professional or community service at the School of Engineering. This fund was established to honor the legacy of Daniel B. Barge Jr., B.E. 1943, who was named a Distinguished Alumnus by the School of Engineering in 1981. Dan served his school in numerous capacities, both formal and informal: as an advisor, an employer of graduates, a donor, volunteer solicitor, and most importantly, as a role model for students. For many years, thanks to Dan's efforts, the school has presented an annual American Society of Civil Engineers (ASCE) Award, given in recent years as the ASCE/Dan Barge Award, to honor Dan's professional accomplishments and contributions to ASCE that culminated in his 1987 presidency.

THE MORRIS H. BERNSTEIN JR. PRIZE IN LATIN DECLAMATION was endowed in 1983 by Mr. William H. Bernstein, B.A. 1983, open to any undergraduate student who has completed at least two semesters of Latin at Vanderbilt University. Contestants shall deliver from memory selected Latin prose or poetry passages which reflect the classical ideal. The fund is named for Mr. Bernstein's father, Dr. Morris H. Bernstein, Jr., B.A. 1943, M.D. 1946.

THE BLAIR STUDENT SERVICE AWARD fund established in 2009 by an anonymous donor to provide an annual award for the Blair student who best exemplifies the spirit and tradition of volunteer service through music at the Blair School of Music.

THE GLENN AND ELIZABETH BOGITSH AWARD was established in 1989 by Burton J. Bogitsh, professor of biology, and Mr. and Mrs. James T. Norris, Jr., to provide an annual award to the student at Vanderbilt University who has best demonstrated a strong commitment to campus recreational programs and, by example and leadership, has inspired participation and sportsmanlike conduct in these activities. The award recognizes physical fitness, participation in recreational sports, and sportsmanship and was established to honor the memory of the Donors'

son, Glenn, and daughter, Libby, both Vanderbilt graduates who died in a 1988 plane crash. The award recipient will be given a small prize and will have his or her name engraved on a plaque, which describes the award and lists annual winners, to be mounted on a wall of the Student Recreation Center.

THE CASEY CARTER BONAR LEADERSHIP AWARD was established in 2011 by multiple donors to provide awards to undergraduate students in their senior year based on leadership, broad collaboration, enthusiasm, passion for campus involvement, selfless service to Vanderbilt, and dedication to positive change at Vanderbilt University. This fund was established to honor the memory of Casey Carter Bonar, B.A. 1985, a dedicated and selfless leader who inspired excellence and propelled others to join in her commitment to serve. Casey's vitality, warmth, compassion, and boundless enthusiasm served to energize and enhance each of the many campus activities in which she was involved, including student government, student media, Greek life, and Impact. Her passion for facilitating friendship and camaraderie for higher purpose, for promoting service to all and helping expand the horizons of the "underdog," earned her the lifelong gratitude and admiration of her Vanderbilt community. An active member of the Alumni Association Board, she often interviewed prospective students and organized alumni activities. Casey was proud of her Vanderbilt education. She exemplified Cornelius Vanderbilt's vision of strengthening the ties that bind as she consistently reached out to make someone's life better.

THE MARGARET BRANSCOMB PRIZE was established in 1993 to support an undergraduate prize at the Blair School of Music. The wife of Vanderbilt's fourth Chancellor, Harvie Branscomb (1946–1963), Mrs. Branscomb served as president of the Vanderbilt Garden Club from 1952 to 1954. Historically, the prize is given annually to a Blair freshman judged by the faculty to have the musical and personal qualities that best exemplify the spirit and standards of the school.

THE SUE BREWER FUND SCHOLARSHIP was established in 1987 by the Songwriters Guild Foundation to provide support to either composition or guitar majors at the Blair School of Music. To qualify, an entering freshman must be ranked in the upper 25th percentile of his or her class, and an upperclassman must have maintained at least a 3.0 GPA in the performance area, a 2.5 GPA in music, and a 2.0 overall GPA. This fund was established in memory of Sue Brewer, who befriended many of Nashville's struggling songwriters in the late 1960s and early 1970s.

THE FRANKLIN BROOKS MEMORIAL AWARD was established in 1995 by multiple donors to defray travel costs for students studying in France through the Vanderbilt in France program at the College of Arts and Science. This fund was established in memory of H. Franklin Brooks, former associate professor of French and three-time director of the Vanderbilt in France program during his 25-year teaching career at Vanderbilt.

THE LARRY ROSS CATHEY MEMORIAL AWARD was established in 1974 by Arnold M. Heiser to support an award that will recognize the most outstanding student majoring in astronomy in the Astronomy Department at the College of Arts and Science. This award was established in 1974 in memory of Larry Ross Cathey, who graduated in 1966 with honors in physics and astronomy.

THE NORA C. CHAFFIN SCHOLARSHIP was established 1956 by the Women's Council of the Women's Student Government Association to provide scholarship support for deserving undergraduate students at Vanderbilt University. This fund was established in honor of Nora C. Chaffin, former Dean of Women known for her service and loyalty to Vanderbilt University and its women students. The scholarship is awarded to a junior student who has displayed service to the University in the area of student government, religious, literary and scholastic activities, and in the arts.

THE CLASSICS DEPARTMENT STUDENT TRAVEL FUND FOR ROME, ITALY was established in 2006 by Richard H. Davis, B.E. 1969, and Barbara C. Davis, B.S.N. 1969, to support undergraduate student travel expenses in Rome, Italy, through the Classics Department at the College of Arts and Science.

THE PAUL CONKIN FUND was established in 1999 by an anonymous donor to establish a prize for the best undergraduate term paper written on American History in the History Department at the College of Arts and Science. Paul Conkin, Distinguished Professor of History Emeritus at Vanderbilt University, is the author of the history of Vanderbilt University, *Gone with the Ivy,* and the *Peabody College History* which was published in 2002.

THE COOLEY MEDAL was established in 1920 to provide recognition for students who excel in fine arts at the College of Arts and Science. The medal is named after Comrade Theodore Cooley, known as one of the most public-spirited citizens of Nashville. Cooley was a successful Nashville businessman and supporter of the Tennessee Centennial and International Exposition held in Nashville in 1897 at the current location of Centennial Park on West End Avenue.

THE WALTER CRILEY PRIZE PAPER AWARD was established in 1978 by Robert Derrick, B.E. 1954, and the Simons-Eastern Company to be given for the best paper on an advanced senior project in electrical engineering at the School of Engineering at Vanderbilt University. This award was created in honor of Walter Criley, professor emeritus of electrical engineering, who taught from 1947 until his retirement in 1965. Professor Criley helped organize both the student chapter and the Nashville section of the Institute of Electrical Engineers, and also served as southeastern regional vice-president of the National Institute of Electrical Engineers. He passed away in 1977.

THE DONALD DAVIE MEMORIAL POETRY PRIZE was established in 2005 by multiple donors to support an annual prize to be awarded each spring to the best poem submitted by a current graduate student in the Department of English at the College of Arts and Science. This fund was created in memory of poet and Vanderbilt University professor Donald Davie.

THE EDWARD PRENTICE DAVIS MEMORIAL PRIZE was established in 1997 by classmates of Mr. Edward ‘Ward’ Prentice Davis, B.A. 1987, to provide support for an annual prize awarded to a deserving NROTC college program midshipman. Ward was commissioned as a Second Lieutenant in the United States Marine Corps and served honorably for three years as an artillery officer. To his Marine Corps peers, Ward was an inspiration because he pursued his commission as a college program midshipman, without any scholarship. Ward passed away in 1995. This fund was established to honor Ward’s commitment and perseverance.

THE ALLAN P. DELOACH MEMORIAL PRIZE IN PHOTOGRAPHY was established in 1998 by Mr. Rusty Edmister and Mrs. Pat Adams to support a prize in photography in the Fine Arts Department at the College of Arts and Science. This fund was established in memory of Mr. Edmister’s and Mrs. Adam’s former co-worker at IBM and Vanderbilt University alumnus, Allan P. DeLoach, B.A. 1963. The award is open to any student who has taken a studio class of any discipline. Students will submit one to three photographs to be judged by a professional photographer, outside of the Vanderbilt community, who will pick the winner and give a slide lecture to students on his/her work.

THE ROBERT V. DILTS AWARD was established in 1994 by multiple donors to provide an award to a deserving undergraduate chemistry student in the Department of Chemistry at the College of Arts and Science. This award was established to honor Professor Robert V. Dilts, who served on the chemistry faculty from 1960 to 1994.

THE ARTHUR J. DYER JR. MEMORIAL PRIZE was established in 1938 by Arthur J. Dyer, Sr. to award a medal to the Civil Engineering student in his/her senior year who shows the greatest proficiency in the study and/or design in the use of structural steel at the School of Engineering, and who is a student member of the American Society of Civil Engineers. This fund was established in memory of a former Vanderbilt student, Arthur James Dyer, Jr., who was injured while prosecuting engineering duties on a bridge at Panama City, Florida, and died September 2, 1928.

THE DAVID ELIA AWARD was established in 2002 by Mrs. Jean M. Elia to provide a $300 annual award to a varsity women's soccer player in the Department of Athletics. Players will vote on who they consider to be the hardest working player. This fund was established in memory of Mr. David Elia, a parent of a Vanderbilt soccer player.

THE T. ALDRICH FINEGAN AWARD FOR EXCELLENCE IN UNDERGRADUATE ECONOMIC RESEARCH was established in 2005 by T. Aldrich Finegan, Professor Emeritus, to recognize excellence in undergraduate research conducted by a senior graduating from the economics honors program. The award should be given for an outstanding thesis written by a student in the Department of Economics Honors Program at the College of Arts and Science.

THE EDWIN S. GARDNER MEMORIAL PRIZE FOR EXCELLENCE IN FRENCH was established in 1980 by Grace D. Gardner, B.A. 1932, to be used, at the discretion of the Department of French at the College of Arts and Science, in one of two ways: 1) to fund an annual award to a graduating senior excelling in French studies, or 2) to purchase books for the French collection in Jean and Alexander Heard Library. Donor made this gift in honor of her late husband, Edwin S. Gardner, B.A. 1927, who served as treasurer of Vanderbilt from 1953 to 1971.

THE GENERAL MOTORS POLITICAL SCIENCE FUND was established to support undergraduate prizes for political science students at the College of Arts and Science.

THE GEYER AWARD was established in 1979 by Mr. Richard A. Geyer Jr. to support a competitive journalism award designed to give recognition to campus reporters "who consistently write articles resulting from thorough research" and whose articles are, at the same time, "lively, informative, and logical" in any area of Vanderbilt University.

THE GUY GOFFE MEANS AWARD was established in 1975 through the bequest of Marie Hochle Means to provide an award to a student with ability in creative writing in the Department of English at the College of Arts and Science.

THE NORMAN L. AND ROSELEA J. GOLDBERG PRIZE was established in 1988 by Roselea J. Goldberg to support an annual award for the best manuscript submitted each year to Vanderbilt University, preferably in the area of art and medicine. The manuscript will be judged by a committee from Vanderbilt University Press.

THE JOHN P. GREER AWARD was established in 2006 by Professor John and Mrs. Shirley Lachs to provide an award to graduating seniors majoring in philosophy and going to medical school. Donors established this award in honor of Dr. John P. Greer, Professor of Medicine in Vanderbilt's Department of Hematology, to commend his career path and in gratitude of the care given by Dr. Greer to Mrs. Lachs.

THE LARRY C. HALL STUDENT TRAVEL FUND was established in 1995 by multiple donors to support a student traveling to the Pittcon Conference, a chemistry related conference, through the College of Arts and Science. The fund was established in honor of Dr. Larry Hall at the time of his retirement.

THE MARGARET STONEWALL WOOLDRIDGE HAMBLET AWARD was established in 1985 by Clement H. Hamblet and Margaret Hamblet Sarner at the College of Arts and Science. The fellowship was established in memory of Margaret Hamblet's love of art and travels to Europe to study art. Margaret Hamblet was a graduate of Peabody College in the Class of 1926. Clement and Margaret Hamblet met in Paris where Margaret was an art student. The fellowship is awarded to a deserving senior with outstanding merit in art and completion of three or more studio art courses and provides one year of travel and furtherance of creative endeavor following graduation from the College of Arts and Science. The second priority for the fund is to provide a continued small subsidy for a second graduating senior.

THE ANDREW SANG HAN MEMORIAL AWARD was established in 2017 to support an award for a woodwind or brass student at the Blair School of Music who demonstrates remarkable musicianship and leadership in all areas of ensemble playing. The award honors Sang Han, a clarinet performance major at the Blair School of Music from 2012–2015. Sang's dedication to excellence in all areas of performance, as well as the care and consideration he showed his peers, served as an example to his friends and colleagues at Blair.

THE JEAN AND ALEXANDER HEARD AWARD was established in 2013 by the children of Jean and Alexander Heard to provide need-based financial assistance to deserving undergraduate students who have been accepted to one of the summer music festivals through a summer study program at the Blair School of Music. This fund was established in memory of Jean and Alexander Heard. Chancellor Alexander Heard served as Vanderbilt University's fifth Chancellor from 1963 to 1982 and oversaw many changes in the campus. Under his tenure, Peabody College, Blair School of Music, and the Owen Graduate School of Management became part of the University.

THE JEAN KELLER HEARD PRIZE was established in 1985 by the Vanderbilt Woman's Club to provide an award for excellence in music performance to a string student seeking a bachelor of music degree at the Blair School of Music. This fund was established to honor violinist Jean Keller Heard, the wife of Vanderbilt's former Chancellor Alexander Heard. Mrs. Heard passed away in 2011.

THE FRANK HOUSTON AWARD FOR ORATORY was established in 1974 by Mr. Frank K. Houston, B.A. 1904, and former member of the Vanderbilt Board of Trust, to support an annual prize given to a student who excels in a presentation in public speaking in any department at Vanderbilt University. Mr. Houston grew up in Murfreesboro, Tennessee, and took public speaking while he was a student at Vanderbilt. He established this competition to encourage competent public speaking, as he believed that his experience at Vanderbilt had made a very real difference in his own life.

THE MELVIN D. JOESTEN SCIENCE VOLUNTEER AWARD FUND was established in 1998 by multiple donors to provide an award for outstanding science student volunteers in the Chemistry Department at the College of Arts and Science. This endowed fund was established in the name of Melvin "Mel" D. Joesten in recognition of his many years of service to the department and to Vanderbilt University.

THE MARK M. JONES UNDERGRADUATE AWARD IN INORGANIC CHEMISTRY was established in 1998 by colleagues and other friends of Professor Jones to recognize undergraduates who have excelled in inorganic chemistry at the College of Arts and Science. Preference will be given to students showing excellence in undergraduate research. Dr. Jones taught chemistry from 1957 until his retirement in 1998 and chaired the chemistry department from 1970 until 1976.

THE MICHAEL B. KEEGAN TRAVELING FELLOWSHIP was established in 2004 by Michael B. Keegan and others to provide one or more graduating undergraduate student(s) with an opportunity to study and travel abroad in pursuit of an issue or topic of personal and intellectual passion. The Fellowship will provide a minimum of one annual award, each in the amount of not less than $10,000 to help pay for travel expenses for the recipient(s), allowing the recipient(s) to study and possibly work outside the United States of America for approximately one year. The fund was established as an international fellowship to foster in the student(s) a sense of his/her potential as a citizen of the world, and as a traveling fellowship to create a deep cross-cultural experience.

THE W. G. KIRKPATRICK ENGINEERING PRIZE was established in 1926 through a bequest from Walter Gill Kirkpatrick, B.E. 1887, B.S. and

M.S. 1889, to provide support for an annual prize for the most deserving third-year student in the Department of Civil Engineering at the School of Engineering.

THE MAGDA LACHS AWARD was established in 2008 by Brenda Higgins, a former employee in Development and Alumni Relations for the Blair School of Music, to support a voice or orchestra student at Blair who participates in the opera presentation in the school year in which it was given. The fund was established in honor of Magda Lachs' 100th birthday.

THE C. MAXWELL LANCASTER AWARD FOR EXCELLENCE IN ITALIAN was established in 1990 by Professor Luigi Monga to honor the memory of C. Maxwell Lancaster, professor of French and Italian at Vanderbilt University from 1939 until his retirement in 1976, and to promote the study of the Italian language and literature at Vanderbilt University. The annual prize will consist of a medal which will be awarded to a fourth-semester student for excellence in Italian, at the recommendation of the faculty of the Department of French and Italian.

THE R. J. LARSEN PRIZE FOR EXCELLENCE IN MATHEMATICS was established in 2005 by multiple donors to provide an award to a graduating senior for excellence in mathematics at the College of Arts and Science. This fund was established in honor of Professor Richard Larsen to celebrate his retirement. Professor Larsen worked in the Department of Mathematics at the College of Arts and Science for over thirty years.

THE JOEL CARL LICHTER MEMORIAL AWARD was established in 1996 by Professor and Mrs. Barry D. Lichter to provide an award that will be presented each year at the Magnolia Awards ceremony to a graduating senior who contributes by example to the promotion of outdoor education, combining academic excellence and expertise in wilderness skills along with friendship and service to others in any area of Vanderbilt University. Professor and Mrs. Lichter established the award to honor the life of their son Joel Lichter, an avid outdoorsman who graduated from Vanderbilt University magna cum laude in 1981 with honors in chemical engineering. Joel Lichter died in a 1992 accident in Alaska while commercial fishing.

THE LEE J. LOVENTHAL PRIZE was established in 1937 by Mr. Lee Jefferson Loventhal, class of 1896 and member of the Vanderbilt University Board of Trust from 1919 to 1940, to establish a prize in the Department of Communication Studies.

THE S. S. AND I. M. F. MARSDEN AWARD IN MUSICAL SCHOLARSHIP was established in 1998 by Dr. Sullivan F. Marsden for a written paper on a topic that might lie outside the normal core of scholarship at the Blair School of Music. The award will be an annual $1,000 prize to encourage and recognize excellence in scholarship.

THE THOMAS W. MARTIN MEMORIAL AWARD was established in 1992 by multiple donors to support an award recognizing an outstanding undergraduate physical chemistry student at the College of Arts and Science. This fund was established in memory of Thomas W. Martin Jr., chair of the Department of Chemistry from 1967 to 1970.

THE CARL MASON AWARD was established in 1986 to provide assistance to incoming graduate students in the area of environmental engineering in the School of Engineering.

THE DELENE LAUBENHEIM MCCLURE MEMORIAL PRIZE IN OPERA was established in 1997 by multiple donors to provide support for voice majors who exhibit excellence in opera at the Blair School of Music. This scholarship was established to honor the memory of Delene Laubenheim McClure, BMUS, 1991. While at Vanderbilt, Mrs. McClure was a member of the Blair Opera Workshop. She debuted at the Kennedy Center in Washington, D.C., in 1994 as a finalist in the National Symphony Orchestra's Young Soloists competition and won the competition in 1995. Mrs. McClure passed away in 1997.

THE JOHN T. AND LIZZE ALLEN MCGILL AWARD was established in 1960 by Lizzie Allen McGill to provide an award to one or more residents of McGill Hall who have the best developed qualities of leadership and scholarship. This fund was established in memory of Mrs. McGill's husband who passed away in 1946, and who spent his life in service to Vanderbilt as a student in the class of 1879, professor emeritus of chemistry, Dean of the School of Pharmacy, and historian of the university. Preference in awarding is for a freshman with financial need.

THE SAMUEL T. MCSEVENEY AWARD was established in 2001 by Professor Samuel T. McSeveney to recognize an undergraduate student with the best paper written in a freshman seminar in the Department of History.

THE MERRILL MOORE AWARD was established in 1961 by Mrs. Merrill Moore, Vanderbilt alumna and widow of the late Merrill Moore, M.D. 1928, to provide a cash award to a student graduating from Vanderbilt University or a junior or senior student on the basis of the student's literary promise and the psychological or practical usefulness of award to him/her at the College of Arts and Science. Dr. Moore was an internationally known Boston psychiatrist and a poet.

THE HENRIETTA HICKMAN MORGAN PRIZE was established in 1946 by William B. Morgan II to provide awards to freshmen students with the best pieces of original writing at the College of Arts and Science. This fund was established in memory of the donor's wife, Henrietta Hickman Morgan. Mrs. Morgan received her B.A. in 1938 from Vanderbilt University and was a member of the Kappa Alpha Theta sorority, and Phi Beta Kappa Phi Sigma Iota, an honorary romance language group. She served as flag secretary and aide to Rear Admiral Martin K. Metcalf for more than two years before falling ill in 1945.

THE NED PARKER NABERS AWARD was established in 1984 by multiple donors to provide an annual prize for the best essay or research paper by an undergraduate student in the fields of classical archaeology or ancient art or architecture. The fund was established in memory of Ned Parker Nabers who served on faculty from 1966 until his death in 1984.

THE DANA W. NANCE PRIZE was established in 1985 by Professor Francis C. Nance, B.A. 1953, and family to provide an annual award to a student at the College of Arts and Science. The award will recognize an outstanding student from the pre-medical curriculum who has demonstrated perseverance in overcoming academic, financial, or social obstacles to succeed, who is well-trained in the technical skills acquired through the undergraduate pre-medical curriculum, and who possesses an abiding sense of ethical and moral concern for the patient. The fund was established to honor Dana W. Nance, B.A. 1925, M.D. 1929, who served for many years as the area chairman of the Vanderbilt Alumni Fund.

THE ELLIOTT AND AILSA NEWMAN CLARINET AWARD was established in 1999 through the bequest of Ailsa MacKay Newman along with additional memorial gifts to provide an award to a deserving clarinet student at the Blair School of Music. Preference when awarding is given to a clarinet major who shows strong musical promise. If a clarinet major is not available, the award should be given to a woodwind student. This fund is named for Mrs. Newman and her husband, who predeceased her.

THE L. HOWARD NICAR MEMORIAL FUND was established in 1997 by multiple donors to award a prize or scholarship to a collegiate student at the Blair School of Music. This fund was established in memory of L. Howard Nicar, former Assistant Dean of Admissions at the Blair School of Music.

THE DONALD E. PEARSON AWARD was established in 1980 by the Chemistry Department and endowed in 2008 by Dr. and Mrs. Frank Pinkerton to provide support for an annual award to an outstanding chemistry major who has done undergraduate research in chemistry. Professor Donald E. Pearson served as faculty in the Department of Chemistry at the College of Arts and Science until his retirement in 1986.

THE PHI BETA KAPPA CENTENNIAL AWARD was established in 1998 by the Phi Beta Kappa Council to provide support for an annual award at the College of Arts and Science. This fund, established in celebration of the Alpha of Tennessee chapter's centennial in 2001, will be presented to a Vanderbilt senior who has been elected to Phi Beta Kappa in their junior year and who has demonstrated excellence in several different fields of academic endeavor, and has applied his or her intellectual talents in extracurricular activities within the university or community that exemplify a dedication to improve the human condition.

THE EMILY ANN BENNETT PLANT AWARD IN ANTHROPOLOGY was established in 1995 by Emily Ann Bennett Plant, B.A. 1994, to provide financial support based on merit and need to recognize excellence in the study of anthropology at the College of Arts and Science. The award may be applied to the cost of tuition and living expenses or to fund supplemental educational activities that will enrich the study of anthropology, such as summer research or participation in a field school.

THE ROBERT PETER PRATT MEMORIAL AWARD was established in 1991 by multiple donors to honor Robert Peter Pratt (1954–1991), former associate director of Undergraduate Admissions and longtime leader in promoting diversity within the student population. The award is presented annually to the Chancellor's Scholar whose accomplishments best exemplify Peter Pratt's commitment to diversity and unity, leadership and cooperation, warmth and openness, and unselfish service to others. The award recognizes a Chancellor's Scholar of junior or senior standing whose campus leadership and service promote diversity and enhance understanding among the various groups that comprise the university community. Academic performance is also considered in selecting the award recipient.

THE DAVID RABIN PRIZE was established in 1985 by multiple donors to provide an annual prize to a student chosen on the basis of music ability and talent at the Blair School of Music. This prize was established in memory of Dr. David Rabin, former professor of medicine in obstetrics and gynecology at the School of Medicine. Dr. Rabin passed away in 1984.

THE JERRY REVES STUDENT ATHLETE GPA AWARD was established through funds from the terminated trust of Dr. Joseph Gerald Reves, Jr., B.A. 1965, to annually fund a plaque for the student-athlete with the highest GPA.

THE JIM ROBINS AWARD was established in 1969 by Michael G. Wagner, B.A. 1957, to honor the memory of James A. Robins, class of 1892, whose life and teaching exemplified selfless devotion to learning, to honor, to participation in sports and to service to youth and Vanderbilt. The prize is awarded to a member of the football team voted as the most outstanding representative of the group.

THE JOE L. ROBY NROTC ESPRIT DE CORPS AWARD was established in 2006 by Mr. Duff Anderson and Mr. W. Patrick McMullan III, B.A. 1974, to recognize and reward Vanderbilt NROTC Midshipmen who display outstanding enthusiasm and esprit de corp as members of the battalion through involvement in NROTC and university activities and provide inspiration to fellow midshipmen and students at Vanderbilt University. The award was created in honor of Joe L. Roby, B.A. 1961, Vanderbilt trustee emeritus, and a former Battalion Commanding Officer of the Vanderbilt NROTC Midshipmen Battalion in recognition of his inspiring leadership at Vanderbilt University and with the Vanderbilt Naval ROTC program and his subsequent service in the United States Navy.

THE KATHRYN SEDBERRY POETRY PRIZE was established in 2003 through the estate of Kathryn Sedberry, M.A. 1963, to provide support for an annual poetry prize in the Department of English at the College of Arts and Science.

THE JAMES G. STAHLMAN NROTC AWARD was established in 1972 by former Vanderbilt Trustee, James Geddes Stahlman, B.A. 1919, to provide an award to the top Navy ROTC member and the top Marine ROTC member from

the senior class who have proven themselves to be the most outstanding in citizenship, scholarship, and leadership in the Naval ROTC unit. The award recipients will be chosen by their Commanding Officer.

THE DAVID STEINE ECONOMICS AND BUSINESS AWARD was established in 2006 by James B. Johnson Jr., B.A. 1954, to recognize undergraduates in the Undergraduate Business Minor Program who show exceptional promise for a career in business. The fund may be awarded to any graduating student from any of Vanderbilt's four undergraduate schools who will graduate with a business minor. The award was established to honor the memory and distinguished career of David Steine, a professor held in the highest esteem by the donor.

THE STEIN STONE MEMORIAL AWARD was established in 1948 by Mrs. James N. Stone to provide an award to students in the School of Engineering. This fund is to be awarded to a graduating senior who has lettered in a sport, preferably football, and who is judged to have made the most satisfactory scholastic and extramural progress as an undergraduate. This fund was established in memory of Mrs. Stone's late husband, James "Stein" Stone, student at the School of Engineering in 1908 and an "All Southern" center on the Vanderbilt University football team from 1904 to 1907.

THE HENRY LEE SWINT AWARD was established in 1976 by Frank A. Woods, B.A. 1963, LL.B. 1966, for an undergraduate history major with the best history essay or research paper in the Department of History at the College of Arts and Science. The fund was established in honor of Henry Lee Swint, a former Holland N. McTyeire Professor of History who served on the faculty from 1939 until his retirement in 1977.

THE ROBERT D. TANNER UNDERGRADUATE RESEARCH AWARD was established in 2005 by multiple donors to provide an award to an undergraduate student conducting research in the Department of Chemical Engineering at the School of Engineering. This award was established in honor of Dr. Robert D. Tanner, emeritus faculty, at the time of his retirement. Dr. Tanner was a professor of chemical engineering at Vanderbilt University.

THE JOEL TELLINGHUISEN PHI BETA KAPPA AWARD was established in 2006 by James B. Johnson, Jr., B.A. 1954, to recognize undergraduate students who have been initiated into Phi Beta Kappa and have shown exceptional ability at the College of Arts and Science. The award honors Joel Tellinghuisen, professor of chemistry, for his positive impact and influence in educating undergraduate students at Vanderbilt, including Mr. Johnson's daughter, Katherine Johnson, B.S. 1994, M.Ed. 1995. The annual awards will be made to graduating seniors who are members of Phi Beta Kappa, in recognition of outstanding performance in research as an undergraduate at Vanderbilt.

THE UNDERWOOD MEMORIAL AWARD was established in 1961 by Newton Underwood to support a senior in the Department of Physics or Department of Biology selected alternately by the head of the physics department and the head of the biology department to be awarded each year at commencement. The award honors his father, Judge Emory Marvin Underwood, B.A. 1900, LL.B. 1902, and a member of the Vanderbilt Board of Trust from 1922 until his death in 1960, who devoted his life to justice and to bringing out the best in people.

THE JACQUELINE AND MORRIS WACHS ESSAY PRIZE was established in 1999 by multiple donors to support a prize in the Department of French and Italian at the College of Arts and Science. This fund was established in memory of Jacqueline Wachs, former French professor from 1966 until her retirement in 1994, and Morris Wachs, emeritus professor of French at Vanderbilt. Mrs. Wachs died in 1999 and Mr. Wachs died in 2001.

THE WALTHER AWARD FOR VUCEPT EXCELLENCE (WAVE) was established in 2005 by Beverly R. Walther, B.S. 1990, MBA 1990, and Michael C. Walther II, B.S. 1989, MBA 1990, to reward undergraduate students serving as mentors in the VUcept orientation program at the discretion of the Provost and Vice Chancellor for Academic Affairs, or designee.

THE THOMAS M. WESER AWARD was established in 1989 by multiple donors to provide support for an annual award honoring an international student who has demonstrated an exceptional commitment to intellectual life, cross-cultural appreciation, and personal integrity at Vanderbilt University. Weser Award recipients are typically active in student organizations and community service projects outside of the classroom and maintain a solid record of academic performance at the undergraduate or graduate level. This fund was established in memory of Thomas M. Weser, an exchange student from Germany who was killed while attending Vanderbilt University in 1988.

THE MARTIN WILLIAMS AWARD was established in 1992 by multiple donors to provide an award to a music major writing the most outstanding paper for a music theory or literature/history course at the Blair School of Music. This fund was established in memory of Martin Williams, director of the Smithsonian Institution's jazz program and adjunct professor of jazz history at the Blair School of Music.

THE FRANK A. WOODS AWARD IN HISTORY was established in 2008 by Mr. James Lachs, B.S. 1993, to provide an award for a graduating senior majoring in history with the most distinguished academic record at the College of Arts and Science. The fund was created in honor of Mr. Frank A. Woods, B.A. 1963, LL.B. 1966.

THE KATHERINE B. WOODWARD PRIZE IN SPANISH was established in 1943 by Katherine B. Woodward, B.A. 1919, to provide an award to the student with the highest average majoring in Spanish at the College of Arts and Science. Preference in awarding will be given to senior year students. Miss Woodward served as a teacher then head of the Spanish Department at the Woodrow Wilson High School in Portsmouth, Virginia, from 1919 until her retirement in 1956. She had a deep love for Vanderbilt and an intense interest in promoting the teaching of Spanish.

French and Italian

CHAIR Lynn Ramey

DIRECTOR OF UNDERGRADUATE STUDIES IN FRENCH Raisa Rexer

DIRECTOR OF UNDERGRADUATE STUDIES IN ITALIAN Elsa Filosa

DIRECTOR OF GRADUATE STUDIES Bob Barsky

PROFESSORS EMERITI Dan Church, Virginia M. Scott, Patricia A. Ward

PROFESSORS Robert Barsky, William Franke, Lynn Ramey, Tracy Sharpley-Whiting, Holly A. Tucker

ASSOCIATE PROFESSORS Nathalie Debrauwere-Miller, Paul B. Miller, Andrea Mirabile, Letizia Modena, Anthère Nzabatsinda

ASSISTANT PROFESSOR Raisa Rexer

ASSISTANT PROFESSOR OF THE PRACTICE: Elsa Filosa, Alexis Finet

PRINCIPAL SENIOR LECTURERS Nathalie Dieu-Porter, Susan Kevra

SENIOR LECTURER EMERITUS Tracy Barrett

SENIOR LECTURER Lisa Blomquist, Anna Marra, Honorine Rouiller

LECTURER Rebecca Peterson, Elena Sergio

COURSES OFFERED: CREO, FREN, ITAL

The Department of French and Italian offers a wide range of courses in the language, culture, and literatures of Italy, France, and other Francophone communities. Most language, literature, and culture courses are taught in French or Italian. Students may use courses in both French and Italian to satisfy some requirements of AXLE.

The department offers a program of concentration in French as well as two interdisciplinary programs: a concentration in French and European studies and a concentration in Italian and European studies. Qualified French majors may also participate in the Honors Program in French. Minors in French and Italian are offered. On the graduate level, the department offers a doctoral program in French.

Many students participate in French or Italian study abroad programs. The department offers Maymester programs in France and Italy. On-campus activities include films, symposia, concerts, and lectures by visiting professors. The department has chapters of national honor societies for both French and Italian students.

Program of Concentration in French

Students who choose to major in French are expected to achieve advanced proficiency in oral and written French and to demonstrate a general understanding of the history of French and Francophone literatures and cultures. No more than 6 credit hours of AP or IB credit may count toward the 30 credit hours required for the major (3 credit hours for 2501W and 3 credit hours of “no equivalent” credit). All majors are strongly urged to spend a semester or a year studying abroad. Majors should consult their advisers about their choice of major courses each semester.

Course work for the major is distributed as follows:

Required courses (9 credit hours): 2501W, 3101, 3102

Two courses from Communications (6 credit hours): 2611, 2614, 2891, 3111, 3112, 3113, 3892

Five courses from Literatures and Cultures (15 credit hours): 3185W, 3222, 3224, 3230, 3232, 3233, 3234, 3332, 3620, 3621, 3622, 3634, 3730, 3881, 3891, 4023, 4025, 4027, 4029, 4222, 4232, 4234, 4320, 4430, 4432.

Honors Program in French

In addition to requirements set by the College of Arts and Science, the following requirements must be met:

1. All the requirements for the 30-credit-hour major in French.
2. One graduate-level French course during the senior year for at least 3 credit hours; this course may substitute for one 3000- or 4000-level course required for the major.
3. Earn a 3.5 grade point average in courses that count toward the French major.
4. Six credit hours of thesis credit under French 4998 and 4999 (Senior Honors Thesis), culminating in a written thesis.
5. An oral examination on the thesis and its area in the last semester of the senior year.

A three-member Honors Committee will administer the program. Students must submit the name of the faculty adviser and the proposed thesis topic to this committee for approval during the second semester of the junior year. The committee will set guidelines for the thesis topic proposal, publish deadlines each year, and administer the oral examination.

Program of Concentration in French and European Studies

Students may elect this interdisciplinary major, which requires a minimum of 30 credit hours of course work. A semester of study at a French study abroad program is strongly encouraged. Course work for the joint major is distributed as follows:

French (24 credit hours)

French Language, Literature, and Culture (9 credit hours): 2501W, 3101, 3102 Communications (3 credit hours): 2611, 2614, 2891, 3111, 3112, 3113, or 3892

Literatures and Cultures (6 credit hours): 3185W, 3224, 3230, 3232, 3234, 3620, 3621, 3622, 3634, 3730, 3881, 3891, 4023, 4027, 4029, 4222, 4232, 4234, 4320, 4430, 4432.

European Studies (12 credit hours)

European Studies core courses (3 credit hours): EUS 2201, 2203

Courses in EUS or alternative topical courses as approved by major adviser (*6 credit hours*)

Minor in French

The minor in French requires 18 credit hours of 2000- or higher-level course work, including 2501W, 3101, and 3102. All minors are expected to consult their advisers about their choice of courses. No course taught in English may count toward the minor. Students are encouraged to participate in a French study abroad program.

Minor in Italian Studies

Students who minor in Italian studies are expected to achieve intermediate proficiency in oral and written Italian, to demonstrate a general understanding of the history of Italian literatures and cultures, and to develop an awareness of the ways Italian studies intersects with other disciplines. The minor in Italian studies requires 15 credit hours of course work, including:

Required courses (6 credit hours):

ITALIAN: 2203, Intermediate Italian (prerequisite ITA 1102; ITA 1103, or equivalent); either 2501W, Grammar and Composition (prerequisite ITA 2203 or equivalent), or 2614, Conversation (prerequisite ITA 2203 or equivalent). ITA 1101, 1102, 1103 do not count toward the minor.

Elective courses (9 credit hours). Only 3 of these elective credit hours may be selected from courses in subject areas other than Italian, such as Classical Studies, History, History of Art and Architecture, Music Literature, and History:

ITALIAN: 2501W, Grammar and Composition (if not used as a required course); 2614, Conversation (if not used as a required course); 3000, Introduction to Italian Literature; 3041, Italian Civilization; 3100, Literature from the Middle Ages to the Renaissance; 3240, Dante's *Divine Comedy;* 3340, *Famous Women* by Boccaccio; 3500, Baroque, Illuminismo, and Romanticism in Italy; 3600, Twentieth-Century Literature: Beauty and Chaos; 3640, Classic Italian Cinema; 3641, Contemporary Italian Cinema; 3701, City Fictions; 3702, Topics in Contemporary Italian Civilization; 3703, The Cultural and Linguistic Worlds of Italy; 3740, Gangsters, Lovers, Madonnas, and Mistresses; 3802, Contemporary Italian Society and Culture; 3890, Special Topics in Italian Literature.

CLASSICAL STUDIES: LAT 3100, Roman Comedy; LAT 3110, Catullus; LAT 3120, Lucretius: *De Rerum Natura*; LAT 3130, Vergil: *The Aeneid;*

LAT 3160, Ovid.

HISTORY: 2220, Medieval and Renaissance Italy, 1000–1700.

HISTORY OF ART AND ARCHITECTURE: 2310, Italian Art to 1500; 2330, Italian Renaissance Art after 1500; 3320, 3320W, Early Renaissance Florence; 3332, Raphael and the Renaissance; 3334, 3334W, Michelangelo's Life and Works.

MUSIC LITERATURE: 3220, Opera in the 17th and 18th Centuries; 3221, Opera in the 19th Century.

Other Italy-related courses not listed here—such as those in study abroad programs—may be approved towards the minor upon approval by the director of undergraduate studies in Italian. Students are encouraged to participate in study abroad programs in Italy.

Program of Concentration in Italian and European Studies

The joint major in Italian and European Studies acknowledges the cultural, political, and strategic importance of Italy within the community of European nations. It requires 30 credit hours of course work; a semester of study in Italy is recommended. Prospective majors should consult with the director of undergraduate studies in Italian and with the director of the European Studies program. Course work for the joint major is distributed as follows:

Italian (18 credit hours)

Italian language and literature — 12 credit hours from the following courses: ITA 2501W, 3000, 3041, 3240, or appropriate substitute in consultation with the adviser in Italian

Electives in Italian Studies (6 credit hours): ITA 2614, 3100, 3600, 3702, or 3640 or any other course approved by the major adviser in Italian

European Studies (12 credit hours)

European Studies core courses (3 credit hours): EUS 2201, 2203, and 4960

EUS thesis seminar (EUS 4960 Senior Tutorial) or equivalent course in Italian *(3 credit hours)*

Courses in EUS or alternative topical courses as approved by major adviser (*6 credit hours*)

Licensure for Teaching

Candidates for teacher licensure in French at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

French

Students who have not studied French in high school should begin their studies at Vanderbilt in French 1101. Students with high school French on their records must present a College Board achievement test score in French to be placed correctly. Students should consult their advisers or the Department of French and Italian for advice on placement.

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Italian

Students with high school Italian on their records should consult the director of undergraduate studies in Italian for advice on placement. Students who have not studied Italian in high school should begin their studies at

Vanderbilt in Italian 1101.

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Gender and Sexuality Studies

CHAIR Katherine Crawford

DIRECTOR OF UNDERGRADUATE STUDIES Elizabeth R. Covington

PROFESSOR EMERITA Charlotte Pierce-Baker

PROFESSORS Dana Nelson, Kelly Oliver

PRINCIPAL SENIOR LECTURER Julie Fesmire

SENIOR LECTURERS Elizabeth R. Covington, Rory Dicker (Women’s Center), K. Allison Hammer, Kristen Navarro, Stacy C. Simplican, Danyelle Valentine

Affiliated Faculty

PROFESSORS Brooke A. Ackerly (Political Science), Ellen T. Armour (Divinity School), Houston A. Baker (English), Robert F. Campany (Asian Studies), Ellen W. Clayton (Pediatrics, Law), Katherine B. Crawford (History), Cynthia J. Cyrus (Blair), Kate Daniels (English), Colin Dayan (English), Bonnie J. Dow (Communication Studies), Lynn E. Enterline (English), Jennifer Fay (Cinema and Media Arts), Gerald Figal (History and Asian Studies), Earl E. Fitz (Portuguese), Vivien G. Fryd (History of Art and Architecture), Tracey E. George (Law), Derek M. Griffith (Medicine, Health, and Society), Joni L. Hersch (Law), Sarah Igo (History), Vera M. Kutzinski (English), Amy-Jill Levine (New Testament Studies), Jonathan M. Metzl (Medicine, Health, and Society), Holly J. McCammon (Sociology), Thomas A. McGinn (History), Bonnie J. Miller- McLemore (Religion, Psychology, and Culture), Lynn T. Ramey (French), Laurel C. Schneider (Religious Studies), Kathryn L. Schwarz (English), Mark L. Schoenfield (English), Tracy D. Sharpley-Whiting (African American and Diaspora Studies, French), John M. Sloop (Communication Studies), Hortense J. Spillers (English), Cecelia Tichi (English), Benigno L. Trigo (Spanish and Portuguese), Emilie Townes (Divinity), Arleen M. Tuchman (History), Holly A. Tucker (French and Italian), Edward N. Wright-Rios (History)

ASSOCIATE PROFESSORS Vanessa B. Beasley (Communication Studies), Laura M. Carpenter (Sociology), Beth A. Conklin (Anthropology), Nathalie A. Debrauwere-Miller (French), Idit Dobbs-Weinstein (Philosophy), Christin Essin (Theatre), Kathy L. Gaca (Classical and Mediterranean Studies), Teresa A. Goddu (English), Rolanda L. Johnson (Nursing), Scott Juengel (English), Christina Karageorgou-Bastea (Spanish and Portuguese), Shaul J. Kelner (Sociology, Jewish Studies), Claire S. King (Communication Studies), Melanie D. Lowe (Blair), Richard J. McGregor (Religious Studies), Adam S. Meyer (Jewish Studies), Tracy Miller (History of Art and Architecture and Asian Studies), Catherine A. Molineux (History), Ifeoma C. Nwankwo (English), Emanuelle Oliveira-Monte (Spanish and Portuguese), Bridget E. Orr (English), Richard N. Pitt (Sociology), Nancy B. Reisman (English), Ruth Rogaski (History), Allison H. Schachter (Jewish Studies), C. Melissa Snarr (Ethics and Society), Meike G. Werner (German, Russian and East European Studies)

ASSISTANT PROFESSORS Candice Amich (English), Gilbert Gonzales (Medicine, Health, and Society), Aimi Hamraie (Medicine, Health, and Society), Jessie Hock (English), Mireille M. Lee (History of Art and Architecture), Luis Leyva (Teaching and Learning), Linda G. Manning (Human and Organizational Development), N. Michelle Murray (Spanish and Portuguese), Monica Park (Classical and Mediterranean Studies), Kimberly Welch (History), Alexis Wells-Oghoghomeh (Religious Studies)

ASSISTANT PROFESSOR OF THE PRACTICE Sophie Bjork-James (Anthropology),

SENIOR LECTURERS Alexandra Sargent Capps (Theatre), Amy Cooter (Sociology), Yollette T. Jones (History),

Elizabeth S. Meadows (English), Courtney Sanders Peterson (Medicine, Health, and Society), JuLeigh Petty (Medicine, Health, and Society)

LECTURERS Melinda Brown (Librarian), Alexsey Dubilet (English), Cara Tuttle Bell (Project Safe)

WRITER IN RESIDENCE Alice Randall (African American and Diaspora Studies)

COURSES OFFERED: GSS

The Department of Gender and Sexuality Studies offers an interdisciplinary curriculum that examines the formation of gender and its intersections with other relations of power, such as sexuality, race, ability, class, nationality, religion, locality and age. The department encourages students to develop new theoretical approaches and to transform the analytical tools of many fields of study. Our courses and instructors pay particular attention to how lives are impacted by systemic inequalities. The goal of our scholarship, teaching, and activism is to make gender and sexuality central rather than peripheral terms of analysis. Our curriculum compels us to recognize the problems and possibilities of our current world and also empowers us to affect change. The Department of Gender and Sexuality Studies offers a major and a minor, and a graduate certificate, which provide a foundation for students who plan to enter professional schools in law, medicine, business, the humanities, and the social sciences.

NOTE: During the 2020/2021 academic year, the Department of Gender and Sexuality Studies will be converting its courses to new subject code, GSS.

Program of Concentration in Gender and Sexuality Studies

The interdisciplinary major in gender and sexuality studies consists of 30–36 credit hours of course work, distributed at the Introductory, Intermediate, and *Advanced* levels, as follows:

Introductory-Level Courses (3 credit hours)

Students must take either GSS (formerly WGS) 1150/1150W (Sex and Gender in Everyday Life) for 3 credit hours or GSS (formerly WGS) 1160/1160W (Sex and Society), also for 3 credit hours.

Intermediate-Level Courses (24 credit hours)

With the exception of GSS (formerly WGS) 4960, GSS (formerly WGS) 1272 and above are intermediate-level courses. GSS (formerly WGS) 1111 (First-Year Writing Seminar) also counts as an intermediate-level course. Of the required 24 intermediate-level credit hours, students must earn credit for at least one course in each of the following areas: international/global feminism; history/social movements; and sex/sexuality and society. Courses that meet these requirements are listed below. Students may earn up to 6 credit hours for internship training, independent research, and readings: GSS (formerly WGS) 3881, GSS (formerly WGS) 3882, or GSS (formerly WGS) 3883.

Advanced-Level Course (3 credit hours)

Students must earn credit for GSS (formerly WGS) 4960 (Senior Seminar), generally taken in the second semester of the student’s final year.

Honors Program

The Honors Program in Gender and Sexuality Studies requires 36 credit hours of course work and is designed to afford exceptional students the opportunity to undertake independent research on a topic in feminist and/or gender scholarship in consultation with faculty members. The program is open to all gender and sexuality studies majors with junior standing who have completed at least 24 credit hours of the major and who have

earned a 3.3 cumulative grade point average and a 3.3 grade point average in courses counting toward the gender and sexuality studies major. Students must be approved for acceptance into the Honors Program by the department chair. To graduate with honors in gender and sexuality studies, students must:

- Complete 36 credit hours of course work;
- Complete the required courses for the major (described above);
- Submit for approval a short description of the Honors project/thesis to the Chair of Gender and Sexuality Studies no later than second semester of the junior year;
- Complete 6 credit hours of independent research, 4998 and 4999 (Honors Research and Project), typically during the senior year under supervision of the project adviser. These 6 credit hours count as electives in the 36 credit hours of course work for Honors majors;
- Complete an honors project by the second semester of the senior year; and
- Pass an oral examination on the topic of the Honors project/thesis.

Information concerning the Honors Program is available from the Chair of the Gender and Sexuality Studies program. College regulations governing honors may be found in this catalog under Honors Programs.

Minor in Gender and Sexuality Studies

The minor in gender and sexuality studies consists of 18 credit hours of course work, distributed as follows:

Introductory-Level Courses (3 credit hours)

Students must take either 1150/1150W (Sex and Gender in Everyday Life) for 3 credit hours or 1160/1160W (Sex and Society), also 3 credit hours.

Intermediate-Level Courses (12 credit hours)

Of the required 12 intermediate-level credit hours, students must earn credit for at least one course in each of the following areas: international/global feminism; history/social movements; and sex/sexuality and society. Courses that meet these requirements are listed below.

Advanced-Level Course (3 credit hours)

Students must earn credit for GSS (formerly WGS) 4960 (Senior Seminar), generally taken in the second semester of the student’s final year.

Courses approved to fulfill the international/global feminism(s) requirement:

ASIA 2609W (Writing and Gender in Traditional China)

ENGL 3658 (Latino-American Literature)

ENGL 3670W (Colonial and Postcolonial Literature)

ENGL 3742 (Feminist Theory)

FREN 3223 (The *Querelles des femmes*) [in French]

FREN 4320 (French Feminist Thought) [in French]

GSS (formerly WGS) 3201 (Women and Gender in Transnational Context)

GSS (formerly WGS) 3281 (Globalization and Policy Making)

GSS (formerly WGS) 3610 (Womanism in Global Context)

ITA 3340 (*Famous Women* by Boccaccio)

PHIL 3007 (French Feminism)

PSCI 3264W (Global Feminisms)

SOC 3711 (Women, Gender, and Globalization)

SPAN 2990 (Images of the Feminine in Spanish Cinema)

Courses approved to fulfill the history/social movements requirement:

AADS 2214 (History and Myth: Black Women in the U.S.)

CMST 3110 (Women, Rhetoric, and Social Change)

ENGL 3622 (Nineteenth-Century Women Writers)

GSS (formerly WGS) 3246/W (Women's Rights, Women's Wrongs)

GSS (formerly WGS) 3250/W (Contemporary Women's Movements)

HIST 2835 (Sexuality and Gender to 1700)

HIST 2840 (Sexuality and Gender since 1700)

HIST 2855 (Women and Gender in the U.S. to 1865)

HIST 2860 (Women and Gender in the U.S. since 1865)

ITA 3740 (Gangsters, Lovers, Madonnas, and Mistresses)

RLST 3930 (Women and Religion)

RLST 3926 (Ancient Goddesses)

SOC 3722 (Gender and Society)

Courses approved to fulfill the sex, sexuality, and society requirement:

AADS 2104 (Popular Culture and Black Sexual Politics)

ANTH 3145 (Sexuality, Gender, and Culture)

CLAS 3100 (Women, Sexuality, and the Family in Ancient Greece and Rome)

CMST 3720 (Communicating Gender)

FREN 4322 (Adultery and Transgressions in Literature) [in French]

GSS (formerly WGS) 2252 (Sex and Scandals in Literature)

GSS (formerly WGS) 2256 (Literary Lesbians)

GSS (formerly WGS) 2612 (LGBT Studies)

GSS (formerly WGS) 2613 (Compulsory Couplehood)

GSS (formerly WGS) 2614 (Cowboys, Gangsters, and Drag Kings: Introduction to Critical Masculinity)

GSS (formerly WGS) 2615 (Transgender Lives in Literature and Film)

HART 3228W (Gender and Sexuality in Greek Art)

HIST 2240 (Sex Law)

HIST 2810 (Women, Health, and Sexuality)

LAS 4550 (Gender, Sexuality and Family in Latin America)

PHIL 3604 (Gender and Sexuality)

RLST 1820 (Religion, Sexuality, Power)

RLST 3225 (Sexuality in the Hebrew Bible and Ancient Near East)

SOC 3723 (Gender, Sexuality, and the Body)

Additional courses approved for intermediate-level GSS credit from other departments:

AADS 1111*, AADS 1204, AADS 2214, AADS 4262, CLAS 1111*, CMST 1111*, CMST 2950, CMST 3100, CMST 3890, ENGL 1111*, ENGL 1111.19, ENGL 1230W*, ENGL1260W*, ENGL 3670/W*, ENGL 3674, ENGL 3890/W*, ENGL 3890.01, ENGL 3894/W*, ENGL 3898/W*, FREN 3230, GER 2444, GER 3344, GER 4535, GER 4537, HIST 1111*, HIST 3010, HIST 4960*, HART 2765, HART 3840*, HART 4960*, JS 1111*, MHS 1111*, MHS 3890*, PSCI 2209, PSCI 2236, PSCI 3271, PSCI 3893*, PSY 3705, RLST 1111*, RLST 2220, RLST 4554, RLST 4834, RLST 4938, SOC 3221, SOC 3304, SOC 3603, SOC 3604, SOC 3611, SOC 3616, SOC 3704, SOC 3724, SPAN 3893*, SPAN 4755, THTR 2781, THTR 3741

*With topic approval by the director of undergraduate studies

General Engineering

DIRECTOR Yiorgos Kostoulas

PROFESSORS OF THE PRACTICE David A. Berezov, Graham S. Hemingway, Yiorgos Kostoulas, David A. Owens, Kenneth R. Pence, Christopher J. Rowe

ASSOCIATE PROFESSORS OF THE PRACTICE Graham S. Hemingway, Grayson McClain

ASSISTANT PROFESSORS OF THE PRACTICE Lynne Cooper, Courtney L. Johnson

LECTURER Julie S. Birdsong

ADJOINT PROFESSORS OF THE PRACTICE: John A. Bers, J. Caleb Clanton

The Division of General Engineering administers the engineering science major, the engineering management minor, and the first-year introduction to engineering course. The division oversees non-traditional engineering study and advises students on course selection to meet specific career goals that traditional engineering majors may not provide.

COURSES OFFERED: ENGM, ES

Engineering Science Major (Bachelor of Science)

The engineering science major is flexible and interdisciplinary—offering students the opportunity to select a program of study to meet special interests or objectives. Many students choose a program of study in engineering management, communication of science and technology, various engineering concentrations, environmental science or materials science; however, students may develop unique plans of study to specialize in areas for which facilities and faculty competence exist but which are not covered within a single existing degree program at Vanderbilt. Engineering science graduates may establish careers in engineering or science, interface with engineers (e.g., in marketing and sales), or use their analytical and problem-solving skills to build future professional careers. Defined areas of concentration exist in engineering management, communication of science and technology, secondary education, and materials science and engineering. Individual programs have been developed for students interested in careers in engineering mathematics, environmental engineering, transportation engineering, teaching, technical communications, and other areas requiring nontraditional combinations of engineering courses. Because of the flexible nature of the engineering science programs of study, accreditation has not been sought for these programs of study, and engineering science majors will not qualify for engineering licensure in most states.

Engineering Management. Engineering management is an interdisciplinary program of study designed to give students the tools to manage technology development and innovation, to enhance manufacturing quality and productivity in a competitive international environment, and to implement these objectives successfully in an organization. Engineering management links engineering, science, and the management disciplines. In addition to the core science and math courses required of all engineering students, topics of study include entrepreneurship, human resources management, finance in technology-based organizations, technology strategy, communications, and operations.

Communication of Science and Technology. Many careers that are attractive to graduates of the engineering science program require the communication of engineering and science to people who are not technically trained. The Communication of Science and Technology interdisciplinary program prepares engineering students for careers in areas such as technical consulting, high-technology marketing and sales, environmental law, and journalism. The program combines traditional engineering and science courses with communications and humanities courses in a flexible curriculum. Engineering science majors may select from a set of program electives identified by the faculty committee of the School of Engineering and the College of Arts and Science that supervises the program.

Minors. Students may also pursue a minor consisting of at least five courses of at least three credit hours within a recognized area of knowledge. Minors are offered in engineering management, materials science and engineering, computer engineering, electrical engineering, computer science, scientific computing, environmental engineering, energy and environmental systems, nanoscience and nanotechnology, and most disciplines within the College of Arts and Science. Students must declare their intention to pursue minors by completing forms available in the Office of Academic Services of the School of Engineering.

Curriculum Requirements

The B.S. in engineering science requires a minimum of 121 hours, distributed as follows:

1. Basic Science (16 hours). CHEM 1601, 1601L plus 12 hours from BSCI 1510, 1510L, 1511, 1511L; CHEM 1602, 1602L; PHYS 1601, 1601L, 1602, 1602L; or MSE 1500, 1500L with two courses in a single discipline.
2. Mathematics (14 hours). MATH 1300, 1301, 2300 and 3 hours from MATH courses numbered 2400 and above.
3. Engineering (43 hours).
    a. Engineering Fundamentals (12 hours): CS 1100 or 1101 or 1103 or 1104; ES 1401, 1402, 1403, 2100W; ENGM 3700.
    b. Engineering Core (12 hours): To be selected from courses in any of the following disciplines: BME, CHBE, CE, CS, DF, ECE, ENVE, MSE, ME, NANO, and SC (except BME 1105; CS 1000, 1151; and any School of Engineering course numbered 2860).
    c. Engineering Electives (15 hours): To be selected from any School of Engineering courses (including ES and ENGM), except BME 1015; CS 1000, 1151; ES 1115, 2700, 3884; ENGM 2440, 4800; and any School of Engineering courses numbered 2860.
    d. Senior Capstone (4 hours): ES 4951, ES 4959.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
5. Open Electives (6 hours).
6. Program Concentration (24 hours). In consultation with the academic adviser, each student must identify a meaningful sequence of courses, not counting certain introductory-level courses, that directly contributes to meeting stated career goals. Program concentrations are approved by the academic adviser and the program director in advance and become part of the student’s degree audit.

The preparation provided by the program concentration, together with a solid foundation in basic engineering courses, provides the engineering science student a strong and useful career base.

No more than 24 credit hours of business-related course work (BUS, BUSA, ENGM, FNEC, MGRL) may be applied to the ES degree program. Only one business-related minor (BUS, ENGM, FNEC, MGRL, HOD) may count to a student’s academic program. No more than 6 credit hours of courses numbered 3840 to 3879 in any program may be applied to the ES degree program.

Undergraduates in engineering science may apply the pass/ fail option only to courses taken as liberal arts core or open electives, subject to the school requirements for pass/fail. UNIV courses are eligible for open elective credit only. Credit for the senior capstone sequence (4 hours) satisfies the Immersion Vanderbilt requirement.

Engineering Management Minor

Engineering management is an interdisciplinary program of study designed to expose engineering students to the concepts and theories of the management of the engineering function, the critical elements of technology development and innovation, and the implementation of such ideas in manufacturing, engineering, and technology environments. Approximately two-thirds of all engineers spend a substantial portion of their professional careers as managers. In the complex, competitive world of technology-driven industry, skilled engineers who understand the essential principles of management and business have a competitive advantage.

The program in engineering management prepares students to work effectively in developing, implementing, and modifying technologies and systems. The ability to manage and administer large technical engineering and research projects and budgets will continue to challenge engineering management skills.

The engineering management minor is designed to provide a working knowledge of the fundamentals of management and innovation.

The minor program consists of 15 hours of course work, some of which may be taken as electives associated with the student’s major program. Five courses are required: four core courses and the remaining course chosen from a list of electives.

Program Requirements

The student must take the following four courses:

ENGM 2210 Technology Strategy

ENGM 2440 Applied Behavioral Science

ENGM 3010 Systems Engineering

ENGM 3700* Program and Project Management

The student must select one of the following courses:

ENGM 2160 Engineering Economy

ENGM 3100 Accounting and Finance for Engineers

ENGM 3200 Technology Marketing

ENGM 3300 Technology Assessment and Forecasting

ENGM 3350 Organizational Behavior

ENGM 3600 Technology-Based Entrepreneurship

ENGM 3650 Operations and Supply Chain Management

ENGM 4500 Product Development

CE 4300 Reliability and Risk Case Studies

ENVE 4305 Enterprise Risk Management

ES 2900 Engineering and Public Policy

*Students majoring in civil or electrical and computer engineering may substitute CE 4400 or ECE 4950 for ENGM 3700.

German, Russian and East European Studies

CHAIR Christoph Zeller

DIRECTOR OF UNDERGRADUATE STUDIES IN GERMAN Silke Schade

DIRECTOR OF UNDERGRADUATE STUDIES IN RUSSIAN Denis Zhernokleyev

DIRECTOR OF GRADUATE STUDIES Meike G. Werner

PROFESSORS EMERITI Barbara Hahn, Konstantin V. Kustanovich, Richard Porter, Peggy Setje-Eilers, Frank Wcislo

PROFESSORS Celia Applegate, Jennifer Fay, Emily Greble, Joel Harrington, Lutz Koepnick, Helmut Smith, Christoph Zeller

ASSOCIATE PROFESSORS Alexander Joskowicz (Jewish Studies), James McFarland, Karen Ng, Meike G. Werner

ASSISTANT PROFESSORS Simone Stirner

ASSISTANT PROFESSORS OF THE PRACTICE Albina Khabibulina, Silke Schade

MELLON ASSISTANT PROFESSOR: Abigail Holekamp

SENIOR LECTURERS David Matthew Johnson, Juntao Li, Claire Scott, Denis Zhernokleyev

COURSES OFFERED: GER, RUSS

German, Russian and East European Studies takes students beyond the headlines to gain in-depth understanding of some of the world's most influential nations and cultures. The department's interdisciplinary curriculum provides a wide range of intellectual experiences, whether your primary interest is in literature, film, visual culture, music, history, thought, or politics. For students who want to engage with German, Russian, or East European culture in a more substantive way, the department offers programs of concentration in German Studies and in Russian Studies.

The department sponsors lectures on topics related to German, Russian and East European society and culture, films, symposia, and other German- and Russian-themed activities. Students are encouraged to apply for living space in McTyeire International House in the German and Russian sections. German Studies majors with sufficient academic qualifications are invited to join Delta Phi Alpha, the national German honor society. Russian Studies majors with sufficient qualifications are invited to join Dobro Slovo, the national Slavic honor society.

Many students majoring in German Studies enroll in study abroad programs in Bremen or Freiburg, Germany. Less formal activities, such as a weekly Kaffeestunde or the Stammtisch at a local pizza parlor, are also open to undergraduates. For further information, please see as.vanderbilt.edu/grees.

The Russian and East European Studies program has a special commitment to undergraduate training in all aspects of Russian language and the cultures and histories of the larger region. Students have several possibilities for *studying abroad* in Russia, including summer-, semester- and year-long programs in Moscow and St. Petersburg, where they have the option of studying history, politics, economics and/or culture alongside the Russian

language. For further information, please see as.vanderbilt.edu/grees.

Program of Concentration in German Studies

A major in German Studies offers deep engagement with the language, history, and culture of Germany and other German-speaking cultures. Students majoring in German Studies gain advanced proficiency in speaking and writing German, a detailed understanding of the complex and often haunting history of modern Germany, and rich insights into the unique work of German writers, filmmakers, artists, musicians, and thinkers. Students are required to complete a total of 30 credit hours of course work beyond GER 1102, including the following:

Core courses: *6 credit hours in 2440, 2441, or 2443*	6
Beginning and Intermediate German language in context: up to 9 credit hours of 1102, 2201, 2202, 3201, 3202W	up to 9
Advanced German language in context: at least 6 credit hours in 3201, 3202W, 3211	at least 6
Electives in German culture and history taught in German: *at least 6 credit hours of any course in German between 4551–4557*	6
Electives in German culture and history taught in English: *up to 12 credit hours of courses taught in English above 2443*	12
Total credit hours:	30

Students are permitted to count a maximum of 6 credit hours of instruction in courses outside the GER subject area toward the major, with the approval of the director of undergraduate studies in German; such course work will count toward the 6 credit hour total for elective courses in German culture and history taught in English. Up to 6 credit hours earned through AP exams or transferred from other institutions may count toward the major. Up to 6 credit hours transferred per semester of study abroad may count toward the major.

German Language Proficiency

In addition, students majoring in German will be tested for language proficiency during their senior year and will be required to submit a paper written for one of their courses due the semester prior to graduation. The director of undergraduate studies in German should be consulted for details on these special learning outcome assessments.

Honors Program in German Studies

Candidates for honors in German who meet College of Arts and Science and departmental requirements must complete all requirements for the concentration in German. In addition, students

- must study a minimum of one semester at a German-speaking university (or gain the equivalent experience);
- complete 3 credit hours beyond the basic course requirements, in the form of a course taught in German above GER 4550;
- maintain at least a 3.0 cumulative GPA in courses that count toward the German major and a 3.30 cumulative GPA;
- complete 3 credit hours of 4999. Write an honors thesis and pass an oral examination during their final semester.

Minor in German Studies

A minor in German documents a student's basic competence in the German language as well as familiarity with German-speaking culture. Students can fulfill the requirements of a minor concentration in German by taking GER 2440, 2441, or 2443 and 15 credit hours in the GER subject area, of which 6 credit hours must be earned in courses taught in the German language, for a total of 18 credit hours.

Study Abroad

Students majoring in German Studies are strongly encouraged to complete an immersive German-language experience in a German-speaking country. Further information is available through the director of undergraduate studies and the Global Education Office.

Program of Concentration in German and European Studies

Students pursuing the interdisciplinary major in German and European studies combine their focus on German language and literature with a study of modern Europe in its political, economic, and cultural diversity. The German and European studies joint major consists of a minimum of 30 credit hours of course work. A semester of study abroad in a German-speaking country is recommended.

Course work for the major is distributed as follows:

German (15 credit hours)

- Language courses (6 credit hours): GER 3201 and 3202W
- Great German Works, History of German Thought, or History of German Cinema (3 credit hours): GER 2440, 2441, or 2443
- German culture in English (3 credit hours); any course between GER 2551–2557, or appropriate substitute approved by the director of undergraduate studies in German
- German culture (3 credit hours): any course between GER 4551–4558

European Studies (15 credit hours)

- European Studies core courses (3 credit hours): EUS 2201 or 2203
- European Studies courses or alternative topical courses as approved by major adviser (9 credit hours)
- Senior Tutorial (3 credit hours): EUS 4960 or equivalent course in German

Program of Concentration in Russian Studies

A major in Russian Studies entails deep and sustained engagement with the language, history, and culture of Russia and Russian speaking communities around the world. As one of the most dynamic actors on the world stage, Russian culture has been at the forefront of the history of literature, film, and visual arts, has produced some of the world's deepest aesthetic engagements with the human condition, and has been at the vanguard of politics both repressive and progressive. Students are required to complete a minimum of 30 credit hours of course work. AP and IB exam credit will not count toward credit hours required for the concentration, but placement exams will be offered for RUSS 1101 and/or 1102. A maximum of 6 credit hours toward the language or elective requirements may be earned from Vanderbilt-approved courses taken from other U.S. institutions or through study abroad programs.

Core course

- RUSS 1500 (3 credit hours)

Language courses in Russian

- RUSS 1102 [prerequisite 1101] (4 credit hours)
- RUSS 2201–2202 (8 credit hours)
- Two courses in Russian above RUSS 3000 (6 credit hours)

Elective courses 9 credit hours minimum

The 9 credit hours of elective credit may be earned from RUSS courses in Russian above 3000, or in English-language courses with the RUSS subject code (see the list of qualifying courses below). Students concentrating in Russian will be expected to take an assessment exam prior to graduation.

Study Abroad

Students majoring in Russian studies are strongly encouraged to complete an immersive Russian-language experience in the Russian Federation or another Russian-speaking country. Further information is available through the director of undergraduate studies and the Global Education Office.

Honors Program

Majors with a cumulative GPA of 3.30 or higher may apply to the Honors Program prior to registration of second semester junior year. They will submit a 6 credit hour program of study that couples a RUSS-designated course above 2202 in the first semester senior year with RUSS 4999, Senior Honors Thesis, in the second semester of the senior year. This program must have the approval of the departmental faculty member who will serve as the senior thesis adviser. The senior thesis is defended in the second semester of the senior year before a faculty committee, which may award Honors or High Honors in Russian to the baccalaureate degree.

Minor in Russian Studies

Requirements for a minor in Russian studies include a minimum of 17 credit hours of course work. Required courses are RUSS 1101–1102 and one English-language course with the RUSS subject code (3 credit hours; see the list of qualifying courses below). The remaining 6 credit hours may be earned either from Russian- and English-language courses with the RUSS subject code (see the list of qualifying courses below) or from other relevant courses with approval of the director of undergraduate studies. A maximum of 6 credit hours toward the Russian minor may be earned from Vanderbilt-approved courses taken from other U.S. institutions or through study abroad programs. AP and IB exam credit will not count toward credit hours required for the minor, but placement exams will be offered for RUSS 1101 and/or 1102.

Russian- and English-language courses with the RUSS subject code that qualify for the elective credit hours required for the concentration and minor in Russian:

1874, 1910W, 1911W, 2201–2202 [minor only], 2210, 2230, 2273, 2434, 2435, 2438, 2485, 2537, 2639, 2745, 2800, 2810, 2910, all 3000-level courses, and 4999.

Program of Concentration in European Studies: Russia and Eastern Europe

Students pursuing the interdisciplinary European Studies major in Russia and Eastern Europe combine their focus on Russian and East European societies with a study of modern Europe in its political, economic, and cultural diversity. Students may elect this interdisciplinary major consisting of 29 credit hours of course work. A semester of study abroad in Russia or Eastern and Central Europe is recommended. Course work for the major is distributed as follows

Russian and East European Studies (17 credit hours)

- 8 credit hours in Russian language: either RUSS 1101–1102 (8 credit hours), or equivalent in another East European language, or RUSS 2201–2202 (8 credit hours), or equivalent in another East European language. Other East European languages include Albanian, Bulgarian, Czech, Croatian/Bosnian/Serbian, Hungarian, Romani, Romanian, Polish, Slovak, or Yiddish.
- 9 credit hours of topical courses on Russia or Eastern Europe in RUSS or as approved by the major adviser

European Studies (12 credit hours)

- EUS 2201, European Society and Culture (3 credit hours) or EUS 2203, The Idea of Europe (3 credit hours)
- 6 credit hours of courses in EUS or alternative topical courses as approved by the major adviser

- EUS 4960, Senior Tutorial (3 credit hours) or equivalent 3 credit hour course in RUSS

Licensure for Teaching

Candidates for teacher licensure in German at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

German

Students with some experience in German should consult the department for placement.

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Russian

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Hebrew

DIRECTOR OF UNDERGRADUATE STUDIES Rebecca Epstein-Levi

ASSISTANT PROFESSOR Mazalit Haim

COURSES OFFERED: HEBR

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

History

CHAIR Emily Greble

VICE CHAIR Ari Bryen

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DIRECTOR OF LAW, HISTORY, AND SOCIETY Thomas Alan Schwartz

DIRECTOR OF ECONOMICS AND HISTORY Jefferson Cowie

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ASSISTANT PROFESSORS Samuel Dolbee, Ole Molvig, Tasha Rijke-Epstein, Frank Robinson, Meng Zhang

COURSES OFFERED: HIST

More than one hundred courses in the Department of History are available to Vanderbilt undergraduates. Some focus on a particular historical period, others on a particular region of the world, and still others on topics that may cross traditional chronological and geographical boundaries. The department is committed to the principle that in a changing world, the way we learn about the past must also change. It will continue to develop new courses for the twenty-first century, with an emphasis on those that recognize the interconnections among the various civilizations and regions of the globe.

Unless indicated otherwise in the course description, history courses have no prerequisite. Except for History 3980, 4960, 4980–4981, and 4999, courses numbered below 5000 are open to all majors and nonmajors. History 4960 is limited to seniors and juniors who have previously taken History 3000W. History 3980, 4980–4981, and 4999 are limited to students who have been admitted to the History Honors Program.

Students will find that the study of history offers not only a strong foundation for a liberal education but also a means of understanding the contemporary world. The skills developed in gathering, assessing, and synthesizing information have wide application in many careers, including business and the professions.

The Department of History offers a major and minor in history; a major in law, history, and society; and, in cooperation with the Department of Economics, a joint major in economics and history, which is described in this catalog under Economics and History.

Program of Concentration in History

The major program requires a minimum of 30 credit hours in history; no more than 3 credit hours of AP or IB credit may count toward this total. Note: AP and IB credit will not count toward the 15 credit hours for the concentration.

Course work is distributed as follows:

1. 3000W or 3980 (3 credit hours)

Note: 3000W or 3980 is a prerequisite for the 4960 capstone course. 3980 is limited to second-semester juniors who have been admitted to the Honors Program. Students entering the Honors Program who have already taken 3000W will receive elective credit for that course.

2. Five courses in one of the following concentrations (15 credit hours):

A. Asia
B. Latin America
C. Europe
D. Early America and the United States
E. Middle East and Africa
F. Global and Transnational
G. Science, Medicine, and Technology
H. Comparative History/Special Topics

See below for a list of courses that count for Concentrations A, B, C, D, E, F, and G. Students choosing concentration H must have the approval of their adviser and the director of undergraduate studies for a specific program of study. First-Year Writing Seminars (1111) in history may be used to satisfy the relevant program concentration with approval of the director of undergraduate studies.

Program A. Asia

1038, 1039, 1050, 1060, 1061W 1070, 1090, 1160, 1161, 1162, 1200, 1882W, 2100, 2105, 2107, 2108, 2108W, 2110, 2111, 2114, 2115, 2120, 2140, 2150, 2160, 2180, 2658, 3090, 3110, 3111, 3112W, 3190, 3220, 3220W, 3230, and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, 4999; ASIA 2411, 2413, 2511, 2630; MHS 2310.

Program B. Latin America

1038, 1039, 1368, 1370, 1375, 1378, 1379W, 1380, 1383, 1384, 1385W, 1469, 2102, 2450, 2457, 2470, 2480, 2490, 2510, 2530, 2535, 2540, 2544, 2542, 2570, 2845, 3100, 3112, 3220, 3230, 3280, and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; AADS 4256.

Program C. Europe

1038, 1039, 11040W, 1200, 1320, 1345, 1350, 1352, 1353 1355W, 1360, 1470, 1480, 1500, 1510, 1510L, 1520, 1580, 1582W, 1583, 1584W, 1586W, 1600, 1605, 1610, 1700, 1725W, 1760, 2130, 2135, 2140, 2160, 2170, 2190, 2205, 2210, 2220, 2230, 2237, 2238, 2240, 2250, 2255, 2260, 2270, 2280, 2290, 2293, 2294, 2300, 2310, 2340, 2380, 2382, 2383, 2385, 2410, 2450, 2595W, 2658, 2660, 2720, 2760, 2760W, 2800, 2835, 2840, 3010, 3120W, 3215, 3050, 3070W, 3100, 3110, 3120, 3150, 3180, 3190, 3210, 3230, 3240, 3240W, 3260, 3270, 3275, 3290, 3310W, 3333 and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; CLAS 2100, 2110, 2120, 2150, 2160, 2180, 3110; ECON 3160; EUS 2201, 2208, 2220; GER 2442, 2554, 2563; JS 1111.09, 1220, 1240, 2450, 2540, 3100, 3210; PHIL 2100; RLST 2250W, 3316, 3350, 4371; RUSS 2800, 2810, 2820, 2910, 2915.

Program D. Early America and the United States

1038, 1039, 1200, 1320, 1353, 1375, 1383, 1385W, 1390, 1395, 1400, 1405, 1410, 1420, 1422W, 1425W, 1427, 1427W, 1430W, 1431, 1438, 1440, 1469, 1480, 1500, 1520, 1605, 1610 1640, 1660, 1665, 1667, 1669, 1690, 1691, 1693, 1699, 1710W, 1725W, 1730, 1735W, 1740, 1770, 1780W, 2111, 2239, 2240, 2530, 2535, 2542, 2550W, 2580, 2590, 2595W, 2610, 2620, 2630, 2640, 2650, 2651, 2655, 2660, 2662, 2684, 2685, 2686, 2689, 2690, 2691, 2692W, 2700, 2710, 2720, 2721, 2722, 2725, 2730, 2735, 2740, 2749, 2750, 2750W, 2752, 2760, 2780, 2800, 2810, 2840, 2845, 2855, 2860, 3010, 3112, 3040, 3045W, 3050, 3070W, 3100, 3110, 3140, 3170, 3190, 3230, 3240W, 3285, 3333 and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; AADS 2214; AMER 1700W; ECON 2150, 3150; HOD 1115; JS 1240, 2540, 2560; MHS 2110.

Program E. Middle East and Africa

1038, 1039, 1161, 1190, 1200, 1269, 1270, 1270W, 1271W, 1280, 1281W, 1725W, 2137, 2138, 2139, 2140,

2154, 2155, 2160, 2170, 2180, 2190, 2413, 2413W, 2510, 2660, 3150, 3190, 3200, 3209, 3210, 3215, 3230, and, as appropriate, 3746, 3850, 3882, 3883, 3890, 4960, 4980–4981, and 4999; AADS 2106; CLAS 2180, 3010; JS 1111.09, 1200, 1220, 1240, 2540, 2600, 2620, 3210; RLST 4371.

Program F. Global and Transnational

1038, 1039, 1040W, 1162, 1190, 1200, 1270, 1270W, 1271W, 1280, 1345, 1353, 1368, 1370, 1378, 1379W, 1380, 1383, 1385W, 1469, 1470, 1515, 1525, 1530, 1600, 1605, 1610, 1665, 1691, 1695W, 1700, 1725W, 1740, 2106, 2110, 2130, 2135, 2137, 2138, 2139, 2140, 2150, 2160, 2170, 2180, 2190, 2238, 2294, 2413, 2413W, 2450, 2457, 2480, 2490, 2530, 2535, 2540, 2542, 2570, 2595W, 2658, 2660, 2700, 2710, 2721, 2722, 2725, 2735, 2740, 2760, 2760W, 2790, 2835, 2840, 2845, 3010, 3100, 3110, 3112W, 3120, 3150, 3190, 3209, 3215 3220, 3230, 3333 and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; ASIA 2413, 2630; CLAS 2120, 2180, 3010, 3110; JS 1200, 1220, 1240, 2450, 2540, 2845, 3000, 3100; EUS 2220; MHS 2110; RLST 3306, 4371; RUSS 2810, 2820, 2910, 2915.

Program G. Science, Medicine, and Technology

Students may meet the requirement by taking five courses from the SMT list, among which not more than two may be courses outside the Department of History.

1385W, 1470, 1480, 1500, 1510, 1510L, 1515, 1520, 1525, 1530, 1780W, 2108, 2108W 2139, 2160, 2413W, 2780, 2790, 2800, 2810, 3040, 3045W, 3050, 3070W, 3110, 3230, 3333 and, as appropriate, 3746, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; ANTH 4373; ASIA 2630; ASTR 2130; ENGL 3720 or 3720W; MATH 3000; MHS 2110, 2310, 2320, 2430; and other courses, as appropriate, with approval of the director of undergraduate studies.

3. Capstone course (3–6 credit hours)

One of the following, to be taken in the junior or senior year; all of the options will require the student to write a major paper. Any capstone course within the student’s area of concentration will count toward the five-course requirement for that concentration.

Option 1: 3883, Internship Research (3 credit hours). Must be taken in conjunction with 3880 (internship training). Prerequisite: 3000W. *Note:* a student may take 3883 as an elective before completing 3000W but in this case 3883 will not count as a capstone course.

Option 2: 4960, Majors Seminar (3 credit hours). Prerequisite: 3000W.

Option 3: 4980–4981, Senior Honors Seminar (6 credit hours). Limited to seniors in the History Honors Program. *Note:* At the discretion of the director of honors and the director of undergraduate studies, a student who has taken 4980 but does not take 4981 may be considered to have fulfilled the capstone requirement for the major.

4. Electives (6–12 credit hours, depending on the nature of the capstone course)

Program of Concentration in Law, History, and Society

As a human institution self-consciously aware of its past, “The Law” raises a complex set of issues that can be addressed historically. Legislation and jurisprudence, for example, allow historians a privileged perspective into how societies sought to define themselves, their values, and their membership. Constitutions provide maps of political power, and serve as sites of struggle over goods both real and symbolic. Records of legal practice are often well preserved, allowing access to the voices and actions of people who are usually left out of systems of

political organization.

This major approaches law from both a historical and an interdisciplinary perspective. Emphasis will be placed on close reading of legal documents, research in legal archives, and analytical writing. Students will be encouraged to develop reading programs and research topics that stretch across national and chronological boundaries, and to think comparatively. Students may not major both in history and in law, history, and society. Students majoring in law, history, and society may apply to receive honors through the History Honors Program.

The major program requires a minimum of 30 credit hours in history; no more than 3 credit hours of AP or IB credit may count toward this total. *Note:* AP and IB credit will not count toward the 15 credit hours for the concentration. No more than 6 credit hours may be from courses outside the Department of History.

Course work is distributed as follows:

1. History Workshop. 3000W or 3980 (3 credit hours)

Note: 3000W is a prerequisite for the 4960 capstone course. 3980 is limited to second-semester juniors who have been admitted to the Honors Program. Students entering the Honors Program who have already taken 3000W will receive elective credit for that course.

2. Law, History, and Society: Five courses from the following:

1040W, 1061W, 1271W, 1345, 1352, 1379W, 1383, 1384, 1385W, 1430W, 1580, 1584W, 1667, 2130, 2135, 2155, 2190, 2237, 2238, 2239, 2240, 2290, 2293, 2294, 2450, 2580, 2590, 2610, 2658, 2662, 2690, 2691, 2692W, 2760, 2760W, 2855, 2860, 3170, 3209, 3290, and as appropriate, 3850, 3882, 3883, 3890, 3980, 4960, 4980–4981, and 4999; CLAS 3150, 3160; CMST 3150; ECON 4210; ENGL 3734; FREN 4232; GSS (formerly WGS) 3271, 3281; JS 2150; MHS 2320; PSCI 1103, 2208, 2226, 2251, 2262, 2265, 2266, 3260; RUSS 2485, 2810, 2820, 2910, 2915; SOC 3605, 3611, 3613, 3621; 3624; and other courses, as appropriate, with approval of the director of undergraduate studies of Law, History, and Society.

Note: First-Year Writing Seminars (1111) in history may be used to satisfy the relevant program concentration with approval of the director of undergraduate studies of Law, History, and Society.

3. Capstone course (3–6 credit hours)

One of the following, to be taken in the junior or senior year; all of the options will require the student to write a major paper, the topic of which must be approved by the director of undergraduate studies of law, history, and society. Any capstone course on a topic concerning law, history, and society will count toward the five-course requirement for the program concentration.

Option 1: 3883, Internship Research (3 credit hours).

Must be taken in conjunction with 3880 (internship training). Prerequisite: 3000W. Note: a student may take 3883 as an elective before completing 3000W but in this case 3883 will not count as a capstone course.

Option 2: 4960, Majors Seminar (3 credit hours).

Prerequisite: 3000W.

Option 3: 4980–4981, Senior Honors Seminar (6 credit

hours). Limited to seniors enrolled in the History Honors Program. *Note:* At the discretion of the director of honors and the director of undergraduate studies in law, history, and society, a student who has taken 4980 but does not take 4981 may be considered to have fulfilled the capstone requirement for the major.

4. Electives (6–12 credit hours in history, depending on the nature of the capstone course)

Electives may include any courses, not used to satisfy any of the above requirements, offered by the Department of History or listed above in major requirement #2.

Honors Program

The Honors Program in History is a three-semester program of study. It offers superior undergraduate history majors a program of advanced reading, research, and writing. The Honors Program combines seminar work and independent study under the supervision of a thesis adviser. This structure provides participants an introduction to historical research and writing, as well as the opportunity to study defined areas of history and significant historical problems that accord with their own interests. The final objectives of the Honors Program are successful authorship of the honors thesis and graduation with honors or highest honors in the major.

Students apply to the Honors Program in the first semester of the junior year. Students meeting college and departmental requirements will enroll for a total of 12 credit hours: History 3980, Junior Honors Seminar in History (3 credit hours); History 4980–4981 Senior Honors Research Seminar (6 credit hours); and 4999, Senior Honors Thesis (3 credit hours). In addition, the Honors Program requires an oral defense of the honors thesis before a faculty committee at the end of the third semester.

Program of Concentration in Economics and History

This is an interdisciplinary program split between economics and history that provides a more focused program of study while requiring fewer credit hours than a double major in the two fields. See the Economics and History section of this catalog for details.

Licensure for Teaching

Candidates for teacher licensure in history at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Minor in History

The minor in history requires a minimum of 18 credit hours in courses that are offered by the Department of History or that are listed above in programs A–G of the history major, among which no more than two courses may be outside the Department of History. At least 9 credit hours must be taken at the 2000 level or higher. Students must complete 3000W. No more than 3 credit hours of AP or IB credit may count toward this total.

History of Art and Architecture

CHAIR Kevin D. Murphy

DIRECTOR OF UNDERGRADUATE STUDIES Sheri Shaneyfelt

DIRECTOR OF GRADUATE STUDIES Sheri Shaneyfelt

PROFESSORS EMERITI Robert A. Baldwin, Vivien Green Fryd, F., Robert L. Mode, Ljubica D. Popovich

PROFESSORS Leonard Folgarait, , , Kevin D. Murphy

ASSOCIATE PROFESSORS Tracy Miller, Elizabeth J. Moodey, Betsey A. Robinson, Rebecca K. VanDiver

MELLON ASSISTANT PROFESSOR Boyoung Chang

ASSISTANT PROFESSOR OF THE PRACTICE Matthew Worsnick

PRINCIPAL SENIOR LECTURER Sheri Shaneyfelt

SENIOR LECTURER Susan Dine

COURSES OFFERED: HART

The Department of History of Art and Architecture treats critically the major fields in world art, from ancient to contemporary, and serves to connect the arts to the other humanities. Many students will use the program in history of art and architecture as a foundation for careers in which analytical reading and writing skills gained in the major are especially valued: as the basis for advanced training in professional schools (such as architecture, law, medicine, journalism, and business), for postgraduate work in history of art or architecture, and for employment in galleries, museums, or design-related fields. A major goal of the department is to help students become readers of visual images and material culture throughout their lives, as well as to encourage visual approaches to learning.

Majors in history of art and architecture participate in the activities of the Vanderbilt History of Art Society and work closely with departmental advisers. The History of Art Society and the department sponsor events such as panels, lectures, debates, and other programs where majors meet and engage in discussions with historians of art and museum curators.

The department curriculum complements those of related departments and programs, including African American and Diaspora Studies, American Studies, Anthropology, Asian Studies, Cinema and Media Arts, Classical and Mediterranean Studies, European Studies, Gender and Sexuality Studies, Latin American Studies, and Religious Studies.

The Department of History of Art and Architecture offers a major and minor in history of art, and a major and minor in architecture and the built environment.

Program of Concentration in History of Art

The history of art major requires 30 credit hours and gives students the opportunity to study art and visual culture across a wide range of historical periods, from ancient to contemporary. The program is designed to allow for concentration in particular periods and areas of interest. By requiring courses in both the lecture and seminar format, the program aims to provide a basis of comprehensive knowledge and challenging opportunities for more specialized instruction.

Students should consider related offerings in cognate disciplines in the humanities and social sciences. Those planning graduate work in history of art should pursue advanced studies—which may include honors—and take advanced courses in other departments offering complementary course work. Advanced language studies are strongly recommended, as graduate programs expect reading facility in one language for the M.A. and two for the Ph.D., with French and German the most commonly required. Non-European languages should be considered for those primarily interested in non-Western traditions.

Course work is distributed as follows:

- A 1000-level course (3 credit hours): Students must complete one 1000-level survey course in history of art or architecture selected from HART 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1220, 1300, or This course is not a prerequisite for further history of art course work but must be taken at Vanderbilt; AP credit will not be accepted.

- Area requirements (15 credit hours)—five history of art courses at the 2000 level or above, one each from the following areas:
    - Ancient: HART 2200, 2210, 2220, 2230, 2250, 2260, 3224, 3226, 3228W, 3240W, 3252; 3256W; CLAS 2250, 3200, 3710, 3720, 3730
    - Medieval: HART 2270, 2275, 2285, 2288, 2290, 3364W
    - Renaissance/Baroque: HART 2310, 2320W, 2325, 2330, 2362, 2390, 3320, 3320W, 3332, 3334, 3334W
    - Modern: HART 2600, 2620, 2622, 2625, 2650, 2660, 2665, 2710, 2720, 2722, 2740, 2750, 2755, 2760, 2765, 3605W, 3712W, 3718W, 3725W, 3740, 3757W, 3766W, 3767W
    - Global: HART 2100, 2110, 2120, 2130, 2150, 2160, 2170, 2175, 2180, 2192, 3112, 3140, 3164W, 3173W, 3174

- Electives (6 credit hours)—two upper-level courses in history of art (HART 2100 to 3850 and 3890; CLAS 2250, 3200, 3720) in addition to the area requirements.

- Advanced Seminars (6 credit hours)—HART 3000W, 4960

Program of Concentration in Architecture and the Built Environment

The track in architecture and the built environment requires 30 credit hours and promotes interdisciplinary and trans-institutional study. It enables students to develop breadth and expertise in the history and theory of architecture, landscape architecture, and constructed environments; design studies; and theoretical and historical approaches to analyzing urban scale and city planning. Students can build a foundation for graduate work in these fields as well as for spatially related specializations in cognate disciplines such as anthropology, political science, public policy, sociology, demography, public health, environmental studies, civil engineering, computer science, and geography and geographic information systems.

Course work is distributed as follows:

1. A 1000-level course (3 credit hours): Students must complete one 1000-level survey course in history of art or architecture selected from HART 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1210W, 1220, 1300, 1330W, 1400, or 1740W. This course is not a prerequisite for further history of art course work but must be taken at Vanderbilt; AP credit will not be accepted.
2. Three courses (9 credit hours) in architectural, design, landscape, or urban history selected from HART 2100, 2110, 2120, 2130, 2150, 2160, 2175, 2180, 2200, 2210, 2220, 2225, 2230, 2250, 2270, 2275, 2285, 2290, 2650, 2665, 2720, 2722, 2740, 2780, 2782, 2815, 2820, 3112, 3140, 3174, 3252, 3790; and CLAS 2250, 3200.
3. One advanced seminar in architectural history (3 credit hours) selected from HART 3240W, 3256W, 3725W, 3757W, 3766W, 3825W, or 3810W (when the course topic concerns architecture and the built environment, landscape architecture, design studies, or urban planning).
4. Five electives (15 credit hours): Electives may include any HART courses listed above in major requirements 1-3 not used to satisfy any of those requirements, or courses chosen from the list below. A maximum of two electives may be taken from any one department (with the exception of History of Art and Architecture), and a maximum of two electives may be taken at the 1000 level.

Students will work with the Director of Undergraduate Studies and departmental advisers to design a program of study that addresses their academic interests and career goals. Students interested in graduate programs in architecture and design should review elective selections with the pre-architecture adviser.

AFRICAN AMERICAN AND DIASPORA STUDIES: 1016, Race Matters; 1716, The African City: Urban Landscapes on the Page, Screen, and Canvas; 2294, Black Paris-Paris Noir: The African Diaspora and the City of Light; 4506, Slavery and Public Memory

AMERICAN STUDIES: 3200, Global Perspectives on the U.S.

ANTHROPOLOGY: 2101, Theories of Culture; 2110, Gender and Cultural Politics; 2130, Global Infrastructure and Everyday Life; 2150, Urban Ecology; 2214, Art and Architecture in the Ancient Americas; 2220W, Human

Landscapes; 2225, Climate Change, Collapse, and Sustainability in History; 3161, Colonial Encounters in the Americas; 3200, Ancient Cities; 3202, The Collapse of Civilizations; 3261, Introduction to Geographic Information Systems and Remote Sensing; 4154, Environmental Anthropology

ART STUDIO: 1101, Introduction to Studio Art; 1102, Drawing and Composition I; 1200, Photography I; 1201, Alternative Photography; 1202, Digital Imaging I; 1300, Painting; 1400, Ceramics; 1401, Sculptural Ceramics; 1500, Sculpture; 1501, Assemblage; 1502, Installation Art; 1503, Text and Image; 1600, Printmaking: Etching and Relief; 1601, Printmaking: Screen and Lithography; 1700, Video Art; 1702, Portable Media I; 1900, Social Collective Art Practice; 2100, Drawing and Composition II; 2102, Drawing: Color Media I; 2200, Photography II; 2202, Digital Imaging II; 2300, Painting II; 2400, Ceramics II; 2401, Concept and Clay: Composite Forms; 2500, Sculpture II; 2600, Printmaking II; 2700, Video Art II; 2702, Portable Media II; 3100, Drawing and Composition III; 3102, Drawing: Color Media II; 3200, Photography III; 3300, Painting III; 3600, Printmaking III

ASIAN STUDIES: 2100W, Fashioning the Self: Coming of Age and Asian Modernities

BIOLOGICAL SCIENCES: 1103/1103L, Green Earth: The Biodiversity and Evolution of Plants; 2238/2238L, Ecology; 3233, Conservation Biology

CINEMA AND MEDIA ARTS: 1600, Introduction to Film and Media Studies; 2400, History of World Cinema

CIVIL ENGINEERING: 2101, Civil and Environmental Engineering Information Systems; 2120, Sustainable Design Civil Engineering; 2200, Statics; 2205, Mechanics of Materials; 3200, Structural Analysis; 3205, Structural Design; 3501, Transportation Systems Engineering; 3600, Environmental Engineering; 4100, Geographic Information Systems (GIS); 4205, Intelligent Transportation Systems; 4320, Data Analytics for Engineers; 4415, Construction Materials and Methods; 4425, Building Information Modeling; 4430, High Performance and Green Buildings; 4505, Urban Transportation Planning; 4950, Civil Engineering Design I; 4951, Civil Engineering Design II

CLASSICAL AND MEDITERRAEAN STUDIES: 1020, Introduction to Mediterranean Archaeology; 3190/3190W, Augustan Rome; 3200, The Greek City; 3710, Archaeology, History, and Culture in Greece: Kenchreai Field School; 3720, History and Art of Ancient Rome; 3730, The Roman to Medieval Near East: Caesarea Excavations, Israel

COMMUNICATION STUDIES: 2800, Rhetoric and Civil Life; 2950, Rhetoric of Mass Media; 3100, Rhetoric of Social Movements; 3700, Politics and Mass Media

COMPUTER SCIENCE: 1000, The Beauty and Joy of Computing; 1101, Programming and Problem Solving; CS 1103 Introductory Programming for Engineers and Scientists; CS 1104 Programming and Problem Solving in Python; 1151, Computers and Ethics

EARTH AND ENVIRONMENTAL SCIENCES: 1510/1510L, The Dynamic Earth: Introduction to Geological Sciences; 2110, Global Climate Change; 2150, Science, Risk, and Policy; 4750, Sustainability: An Environmental Science Perspective; 4760, Agent- and Individual-Based Computational Modeling

ECONOMICS: 1010, Principles of Macroeconomics; 1020, Principles of Microeconomics; 2170, Environmental Economics; 2340, Plunder and Pillage: The Economics of Warfare and Conflict; 3230, Urban Economics

ENGINEERING SCIENCE: 2700, Engineering Career Development; 2900, Engineering and Public Policy

ENGLISH: 3692, Desire in America: Literature, Cinema, and History; 3694, America on Film: Art and Ideology; 3695, America on Film: Performance and Culture; 3730, Literature and the Environment

ENVIRONMENTAL ENGINEERING: 3610, Sustainable Development; 4615, Environmental Assessments; 4700, Energy and Water Resources

EUROPEAN STUDIES: 2201, European Society and Culture; 2203, The Idea of Europe; 2800, Pursuing Utopia: Social Justice and Romanticism in the Alps; 2260, European Cities

FRENCH: 3634, Parisian Geographies: Paris in 19th and 20th Century Art and Literature

GENDER AND SEXUALITY STUDIES: 1160, Sex and Society; 2268, Gender, Race, Justice, and the Environment

HISTORY: 1039, Global History 1453 to Present; 1281/1281W, The Making of African Cities: Histories of Globalization and Migration; 1355W, Innovation and Renovation in Renaissance Europe; 1368, Rio de Janeiro: Culture and Citizenship in the Marvelous City; 1430W, North American Indians and the Environment; 1510/1510L, The Scientific Revolution/Digital History Lab; 1586W, Nazi Germany, the Holocaust, and Digital Humanities; 2220, Medieval and Renaissance Italy, 1000-1700; 2413/2413W, Global History of Waste; 2655, Historic Black Nashville; 2686, Race, Rights, and the American Dream; 2780, Superhuman Civilization; 3050, Innovation; 3140, History of New Orleans; 3150, Cities of Europe and the Middle East; 3180, Making of Modern Paris

HISTORY OF ART AND ARCHITECTURE: 1111.09, Seven Wonders of the Ancient World; 1111.11, Sacred Geographies of China; 1111.12, Pompeii: Life and Death of a Roman City; 1111.17, New York City Architecture

HUMAN AND ORGANIZATIONAL DEVELOPMENT : 3202, Community Development Theory; 3212, Community Development Organizations and Policies

ITALIAN: 3642, Italian Visual Culture; 3701, City Fictions

JEWISH STUDIES: 2450, The Jewish Diaspora; 2520, Zionism: Politics, Religion, and Ethnicity; 3730, The Roman to Medieval Near East: Caesarea Excavations, Israel

MATERIALS SCIENCE AND ENGINEERING: 1500, 1500L, Materials Science I and Laboratory

MATHEMATICS: 1100, Survey of Calculus; 1200, Single-Variable Calculus I; 1201, Single-Variable Calculus II; 1300, Accelerated Single-Variable Calculus I; 1301, Accelerated Single-Variable Calculus II; 2300, Multivariable Calculus; 2310, Multivariable Calculus with Matrix Algebra; 2400, Differential Equations with Linear Algebra

MECHANICAL ENGINEERING: 2160, Introduction to Mechanical Engineering Design; 3248, Heat Transfer; 4258, Engineering Acoustics; 4259, Engineering Vibrations; 4262, Environmental Control

MEDICINE, HEALTH, AND SOCIETY: 1950, Theories of the Body; 2240, Bionic Bodies, Disability Cultures; 3040, Designing Healthy Publics; 3120, Medicine, Technology, and Society

MUSIC LITERATURE: 1660, Music and Tourism: Music City Museum and Memorabilia; 2350, The Music and Culture of Venice; 3230, Music and the Construction of National Identity

NEUROSCIENCE: 2201, Neuroscience

PHILOSOPHY: 1005, Introduction to Ethics; 1111.05, Green Cities; 3013, History of Aesthetics; 3014, Modernistic Aesthetics; 3611, Environmental Philosophy; 3615, Philosophy of Film; 3661, Topics in Aesthetics

PHYSICS: 1010/1010L, Introductory Physics; 1601/1601L, General Physics I; 1602/1602L, General Physics II; 2255/2255L, Modern Physics and the Quantum World; 2275, Classical Mechanics

POLITICAL SCIENCE: 2256, Politics of Public Policy; 3253, Ethics and Public Policy; 3272W, The War in Iraq, 2003-2011; 4257, The Politics of Capitalism

PSYCHOLOGY: 3110, Social Psychology

PUBLIC POLICY STUDIES: 3100, Cities in the 21st Century

RELIGIOUS STUDIES: 2472, Religion, Ecology, and Power in Africa; 3669, Sacred Space in the Tibetan World

RUSSIAN: 2745, Radical Art: The Avant-Garde Revolution; 2800, Viewing Communism in Eastern Europe; 2810, Revolutions and Post-Communisms in Eastern Europe and Eurasia, 1981-2010

SOCIOLOGY: 1030, Environment and Society; 3001, Sociological Perspectives; 3204, Tourism, Culture, and Place; 3206, Creativity and Innovation in Society; 3221, The Family; 3311, Climate Change and Society; 3312, Environment and Development; 3314, Environmental Inequality and Justice; 3315, Human Ecology and Society; 3316, Business, Civil Society, and the Environment; 3317, Energy Transitions and Society; 3321, Population and Society; 3601, Self, Society, and Social Change; 3612, Class, Status, and Power; 3615, Human Behavior in Organizations; 3723, Gender, Sexuality, and the Body

SPANISH: 4810, Images of the City

THEATRE: 1010, 1010W, Fundamentals of Theatre; 1751, Fundamentals of Theatre Design

UNIVERSITY COURSES: 3200, Race, Place, and Power; 3279, Virtual Reality Design; 3350, Design Thinking, Design Doing; 3360, Data Science Methods for Smart City Applications

Honors Program

The honors program in history of art and architecture allows exceptional undergraduate students to undertake independent research on a topic in art or architectural history in consultation with faculty members. The program is open to all history of art and architecture majors with junior standing who have earned a 3.30 grade point average in all university courses and a 3.30 grade point average in history of art courses. They must also be approved for acceptance into the honors program by the department faculty. Completion of the program requires 9 credit hours of study: HART 3850, Independent Research (the second semester of the junior year, unless studying abroad, in which case one is expected to enroll in this class the first semester of the junior year); HART 4998, Honors Research (first semester of the senior year); and HART 4999, Honors Thesis (second semester of the senior year); submission of an honors thesis; and successful completion of an oral defense of the thesis. These independent research credit hours are in addition to the 30 credit hours required for the major in history of art or architecture and the built environment. Students meeting these requirements receive honors or highest honors in history of art or architecture and the built environment, depending on the quality of the thesis, grades in history of art and architecture courses, and defense results. Successful departmental honors students will receive a Vanderbilt diploma that records honors or highest honors in history of art or architecture and the built environment.

Minor in History of Art

The minor in history of art requires 18 credit hours of course work, including the following:

Two 1000-level courses from 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1220, 1300, or 1400, plus any four upper-level

history of art courses (HART 2100 to 3850 and 3890, 4960), and classes designated CLAS 2250, 3200, 3710, 3720, 3730.

Minor in Architecture and the Built Environment

The minor in architecture and the built environment requires 18 credit hours of course work, distributed as follows:

1. A 1000-level course (3 credit hours): Students must complete one 1000-level survey course in history of art or architecture selected from HART 1100, 1105, 1120, 1121, 1122, 1200, 1205, 1210W, 1220, 1300, 1330W, 1400, or 1740W.
2. Three courses (9 credit hours) in architectural, design, landscape, or urban history selected from HART 2100, 2110, 2120, 2130, 2150, 2160, 2175, 2180, 2200, 2210, 2220, 2225, 2230, 2250, 2270, 2275, 2285, 2290, 2650, 2665, 2720, 2722, 2740, 2780, 2782, 2815, 2820, 3112, 3140, 3174, 3252, 3790; and CLAS 2250, 3200.
3. Two electives (6 credit hours): Electives may include any HART courses listed above in minor requirements 1- 2 not used to satisfy either of those requirements or courses chosen from the Electives list for the architecture and the built environment major. No more than one elective course may be taken at the 1000 level.

Honors

COURSES OFFERED: HONS

Courses designated “Honors” are parts of a special honors program in liberal education called the College Scholars program. They may be taken only by students who have been appointed College Scholars by the dean of the College of Arts and Science. Some College Scholars are appointed before they arrive for their first semester in residence; others may be appointed on the basis of their records in that first semester. All first-year students in the College of Arts and Science may apply to the associate dean for honors programs for admission to the College Scholars program; only first-year students are considered for admission.

Honors seminars offered in the College Scholars program provide an especially interesting and challenging way for College Scholars to complete certain parts of the program for Achieving Excellence in Liberal Education (AXLE).

They are designed to cover topics through the intensive analysis afforded by the seminar setting and format. An honors seminar will satisfy the requirement for a first-year writing seminar. Honors 1810W, 1820W, 1830W, 1840W, 1850W, and 1860W count toward the AXLE requirements identified by the seminars' titles. Honors 1810W are Humanities and the Creative Arts (HCA) courses; Honors 1820W are Perspectives (P) courses; Honors 1830W are Social and Behavioral Sciences (SBS) courses; Honors 1840W are History and Culture of the United States (US) courses; Honors 1850W are Mathematics and Natural Sciences (MNS) courses; Honors 1860W are International Cultures (INT) courses.

In addition to regular credit hours and grade points, honors seminars carry honors points toward graduation with the designation "Honors in the College of Arts and Science." College Scholars must earn fifteen honors points to receive that designation (they are not required to earn this designation but may take as many honors seminars as they wish).

They may earn up to thirteen of the required fifteen points in honors seminars: three points each for the first time they take Honors 1810W, 1820W, 1830W, 1840W, 1850W, or 1860W; one point if they take a second seminar in the same area. Single honors points may be earned (a) in departmental honors sections of regular courses, (b) in independent project approved by the associate dean for honors programs, and (c) in a regular course in which an enriched curriculum approved by the Committee on the Honors Program is pursued. Honors points are only earned for courses in which the student earns the grade *B* or better.

Honors in Peabody College

Founder's Medal

The Founder's Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the Dean after consideration of faculty recommendation and overall academic achievements, as well as grade point averages of the year's highest ranking summa cum laude graduates.

Latin Honors Designation

Honors, which are noted on diplomas and published in the Commencement Program, are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years' graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years' graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years' graduating seniors.

Dean's List

The Dean's List recognizes outstanding academic performance in a semester. Students are named to the Dean's List when they earn a grade point average of at least 3.500 while carrying 12 or more graded hours, with no temporary or missing grades in any course (credit or non-credit), and no grade of F.

Kappa Delta Pi

Kappa Delta Pi is an education honor society organized in 1911 at the University of Illinois to foster excellence in scholarship, high personal standards, improvement in teacher preparation, distinction in achievement, and contributions to education. Membership is limited to juniors and seniors with a grade point average of 3.500 or better, and graduate students with a grade point average of 3.750 or better. Candidates for membership must have completed at least 9 hours in education or psychology.

Honor Societies for Freshmen

Freshmen who earn grade point averages of 3.500 or better for their first semester are eligible for membership in the Vanderbilt chapters of Phi Eta Sigma and Alpha Lambda Delta.

Awards

ALGERNON SYDNEY SULLIVAN AWARD. Established in 1925 to recognize an undergraduate student that has demonstrated excellence of character and service to humanity.

THE PEABODY ALUMNI AWARD. Awarded by the Peabody Alumni Association to a member of the graduating class who has demonstrated outstanding qualities of scholarship and leadership.

THE WILLIS D. HAWLEY AWARD. Awarded by students of Peabody College to a senior who exemplifies Peabody's commitment of service to others.

DEAN'S AWARD FOR OUTSTANDING SCHOLARSHIP. Awarded to each *summa cum laude* graduate.

Human Organization and Development

SENIOR THESIS AWARD. Awarded to the graduating senior in the Human and Organizational Development Program who has submitted the most outstanding senior thesis. The winner is selected from a group of five finalists who make an oral presentation of their theses to a panel of five professors.

HUMAN AND ORGANIZATIONAL DEVELOPMENT AWARDS. Established in 1999 and presented to the graduating seniors who exemplify the highest levels of scholarship and leadership in the Human and Organizational Development Program. The awards are given in these areas: Community Service, Outstanding Community Development and Social Policy, Outstanding Health and Human Services, and Outstanding Leadership and Organizational Effectiveness.

HUMAN ORGANIZATION AND DEVELOPMENT CAPSTONE AWARD: Established in 2011 to recognize the human and organizational development senior whose overall capstone performance had the most significant impact within their host internship organization, as determined by nominating faculty, peers, and site supervisors.

Psychology and Human Development

PSYCHOLOGY AND HUMAN DEVELOPMENT UNDERGRADUATE HONORS AWARD. Awarded to the graduating senior who has successfully completed the Undergraduate Honors program in Cognitive Studies, or Child Development, or Child Studies and who has produced the best overall honor project.

EXCELLENCE IN CHILD DEVELOPMENT AWARD. Awarded to the graduating senior majoring in Child Development whose work in the opinion of the faculty of the Department of Psychology and Human Development exemplifies academic excellence.

EXCELLENCE IN CHILD STUDIES AWARD. Presented annually by the Department of Psychology and Human Development to the graduating senior who most clearly exemplifies the goals of the Child Studies Program.

EXCELLENCE IN COGNITIVE STUDIES AWARD. Presented annually by the Department of Psychology and Human Development to the graduating senior who most clearly exemplifies the goals of the Cognitive Studies Department.

Special Education

THE DEPARTMENT OF SPECIAL EDUCATION DISTINGUISHED ACADEMIC ACHIEVEMENT AWARD. Awarded annually to the graduating senior in the Department of Special Education who exemplifies the highest level of academic achievement.

THE DISTINGUISHED SERVICE IN SPECIAL EDUCATION AWARD. Presented annually to the graduating senior in the Department of Special Education who exemplifies the highest commitment to professional service in special education.

DISTINGUISHED TEACHER OF EXCELLENCE IN SPECIAL EDUCATION AWARD. Established in 1999. Awarded annually by the Department of Special Education to the graduating senior who has demonstrated the highest level of excellence in teaching in the area of special education.

DISTINGUIED UNDERGRADUATE RESEARCH PROMISE AWARD IN SPECIAL EDUCATION. Presented annually to the graduating senior in special education, who has demonstrated exemplary academic scholarship and engagement in research.

Teaching and Learning

DOROTHY J. SKEEL AWARD FOR OUTSTANDING PROFESSIONAL PROMISE (ELEMENTARY/EARLY CHILDHOOD EDUCATION). Presented annually to the graduating senior in the Department of Teaching and Learning who has shown exceptional promise as a future teacher at the elementary school or early childhood level.

KEVIN LONGINOTTI AWARD. Awarded annually to a graduating senior in the Department of Teaching and Learning who shows exceptional promise as a future teacher at the secondary school level.

OUTSTANDING PROFESSIONAL PROMISE AWARD IN EARLY CHILDHOOD EDUCATION. Presented annually to a graduating senior who shows exceptional promise as a future teacher at the early childhood level.

UNDERGRADUATE AWARD FOR RESEARCH IN THE PRACTICE OF TEACHING AND LEARNING. Presented to a graduating senior who has, in or out of the classroom, integrated research and practice in the field of teaching and learning.

UNDERGRADUATE SERVICE IN DIVERSE CONTEXTS AWARD. Presented to a graduating senior who has demonstrated exemplary service out of the classroom in diverse settings.

Honors in the Blair School of Music

Founder’s Medal

The Founder’s Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the Dean after consideration of faculty recommendations as well as grade point averages of the year’s highest-ranking graduates.

Academic Honors Designation

Honors, which are noted on diplomas and published in the *Commencement Program,* are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years’ graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years’ graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years’ graduating seniors.

Honors Program in Musicology and Ethnomusicology

The honors program in musicology and ethnomusicology is designed to afford superior students the opportunity to pursue more intensive work within the field of musicology or ethnomusicology, culminating in the preparation of a senior honors thesis. The course of study includes seminar work as well as independent study and writing under the supervision of a thesis adviser. Students who want to do honors work should contact the chair of the musicology and ethnomusicology department in the fall of their junior year. Departmental approval of a formal honors thesis prospectus must take place prior to registration for MUSL 4998 in spring of the junior year or fall of the senior year. Minimum requirements are a 3.0 GPA overall and 3.3 in musicology and ethnomusicology courses.

Students accepted into the program must take a total of 9 credit hours: MUSL 4998–4999, Senior Honors Thesis (6 hours), and one course (beyond the MUSL core) chosen from MUSL 2610, 3160, 3220-3240, or 3890 (3 hours). In addition, successful completion of the honors program requires an oral defense of the honors thesis before a faculty committee. This defense will occur at the end of the second semester of thesis enrollment. Those enrolled in the program who successfully complete its requirements with distinction may graduate with Honors or Highest Honors in musicology and ethnomusicology.

Dean’s List

The Dean’s List recognizes outstanding academic performance in a semester. Students are named to the Dean’s List when they earn a grade point average of at least 3.500 while carrying 12 or more graded hours, with no temporary or missing grades in any course (credit or non-credit), and no grade of *F*.

Pi Kappa Lambda

Election to Pi Kappa Lambda National Music Honor Society signifies superior accomplishment in the field of music. Students elected to membership must be outstanding musically and scholastically and ranked in the highest 20 percent of the senior class or the highest 10 percent of the junior class. The Eta Iota chapter was installed at Vanderbilt on April 8, 1992. Professor Karen Ann Krieger serves as its president.

Awards and Prizes

Several awards are presented to students at the Blair School of Music. Announcement is made at the final student recital/convocation of the spring semester. Each carries a monetary stipend. Awards, which are published in the *Commencement Program,* are as follows:

ACHIEVEMENT IN TEACHING AWARD. The Achievement in Teaching Award is presented by the faculty to a senior who has demonstrated superior abilities in teaching. The recipient must intend to teach music professionally in an independent studio or a classroom, or at the collegiate level.

ANDREW SANG HAN MEMORIAL AWARD. Established in memory of Sang Han, a clarinet performance major at Blair from 2012 to 2015. Sang’s dedication to excellence in all areas of performance, from small chamber ensembles to wind symphony and orchestra, as well as the care and consideration he showed his peers, served as an example to his friends and colleagues at the Blair School. Presented to a woodwind or brass student who demonstrates remarkable musicianship and leadership in all areas of ensemble playing.

THE BLAIR VOLUNTEER SERVICE THROUGH MUSIC AWARD. Established in 2009, the award recognizes a student who, using music in service to others, has performed with extraordinary effort and distinction, particularly at the W. O. Smith Community Music School.

CHRISTIAN TEAL AWARD. This award recognizes a current string student who embodies the collaborative spirit of Professor Chris Teal, who retired in 2015 as Joseph Joachim Professor of Violin after forty-two years at the Blair School.

DAVID RABIN PRIZE. Established in memory of David Rabin, M.D., a professor of medicine and professor of obstetrics and gynecology at Vanderbilt from 1975 to 1984, and awarded for excellence in musical performance to a student enrolled at the Blair School of Music.

ELLIOT AND AILSA NEWMAN PRIZE. Endowed by Mrs. Ailsa Mackay Newman, in memory of her husband, Elliott Voss Newman, M.D., and his love of the clarinet. Dr. Newman was the Werthan Professor of Experimental Medicine at Vanderbilt from 1952 until his death in 1973. This prize is awarded to a promising clarinet or woodwind student for excellence in performance.

EXCELLENCE IN PIANO PERFORMANCE AWARD. This award is given by Blair faculty member Amy Kane Jarman in memory of her mother, June Kane, a 1947 piano performance graduate of the University of Colorado Boulder, and lifelong musician.

JEAN KELLER HEARD PRIZE. Established in honor of violinist Jean Keller Heard and awarded for excellence in musical performance to a string student or students seeking the bachelor of music at the Blair School of Music.

JULIUS AND MAGDA LACHS AWARD. Funded by Vanderbilt's Centennial Professor of Philosophy, John Lachs, in memory of his mother, Magda, a passionate opera enthusiast, and his father, Julius Lachs. It is given to an outstanding voice or orchestra student who participated in the current year's Vanderbilt Opera Theatre production.

L. HOWARD "ZEKE" NICAR AWARD. Established in memory of L. Howard "Zeke" Nicar, the Blair School of Music's first assistant dean for admissions. This award is presented to an outstanding student, for excellence in performance, as selected by the woodwind or brass faculty.

MARGARET BRANSCOMB PRIZE. Established in memory of Margaret Branscomb, wife of Vanderbilt Chancellor Emeritus Harvie Branscomb, and presented to a first-year student judged by the faculty to have the personal and musical qualities which best exemplify the spirit and standards of Blair.

MARK WAIT AWARD. Awarded for academic excellence and exemplary citizenship to a Blair senior with a second major outside of music. The Wait Award was created by an anonymous donor in honor of Mark Wait's tenure as dean of the Blair School.

MARTIN WILLIAMS AWARD. Established in memory of Martin Williams, former director of the Smithsonian Institution's Jazz Program and an adjunct professor of jazz history at Blair. This award is presented to the student writing the most outstanding class paper during the academic year.

MICHELSON AWARD IN COLLABORATIVE ARTS. Established in honor of Laura Michelson, BMus'11, this award is presented to a singer, pianist, or voice/piano duo for exceptional performance in collaborative arts.

PRESSER AWARD. Established in memory of Theodore Presser, music publisher and philanthropist, and awarded to a rising senior judged by the Blair School of Music faculty to exemplify excellence both musically and academically.

RICHARD C. COOPER AWARD. This award is presented by the Pi Delta Chapter of Phi Mu Alpha to remember the

outstanding contributions made by Chris Cooper to the student experience of music at Vanderbilt University.

SPIRIT OF BILLY ADAIR AWARD. The Spirit of Billy Adair award is given to a sophomore or junior who exhibits the qualities of leadership, mentorship, excellence, musicianship, and service within the jazz program at Blair.

STUDENT CITIZEN AWARD. The Student Citizen Award is given to the sophomore or junior judged by the entire faculty to have the musical and personal qualities that best exemplify the spirit and standards of the school, especially by sharing their talent and training in music as a service to others.The award is established by Madeline Myers, B.Mus.'11, in memory of
her father, James Agnew Myers.

SUE BREWER AWARD. Established in memory of Sue Brewer by the Songwriters Guild Foundation and awarded for excellence to a student majoring in composition.

UNDERGRADUATE COMPOSITION AWARD. The Undergraduate Composition Award is awarded by the composition faculty to a student of junior or senior status who has made an outstanding contribution to the Blair School's composition program through creative output, academic excellence, and personal dedication. Given in honor of Sean William Calhoun, BMus'14.

Honors in the College of Arts and Science

Founder's Medal

The Founder's Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the Dean after consideration of faculty recommendations and overall academic achievements, as well as grade point averages of the year's highest ranking summa cum laude graduates.

Latin Honors Designation

Honors noted on diplomas and published in the Commencement program are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years' Arts and Science graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years' Arts and Science graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years' Arts and Science graduating seniors.

College Scholars Program

The College Scholars Program is the honors program for the College of Arts and Science. All first-year students in the College of Arts & Science are invited to apply at the end of their first semester. Students are selected to participate in the College Scholars program based on their academic record and achievements from their first semester on campus. These students have the opportunity to pursue advanced scholarly work in honors seminars and enriched courses or independent-studies projects. The College Scholars program is open only to Arts and Science students.

College Scholars may achieve the designation "Honors in the College of Arts and Science" on their diplomas by acquiring fifteen "honors points" in the program. The honors points system encourages breadth and depth. Students accomplish these goals by taking honors seminars in several AXLE categories and by doing

independent projects (independent studies, enriching courses, departmental honors research, internships, service, and creative projects). A maximum of thirteen points may be earned in honors seminars, and a minimum of two research projects must be completed to earn fifteen points. Students must earn a grade of “B” or better in classes that earn honors points. To remain in good standing in the program, students must maintain a minimum grade point average of 3.000.

Further information on the College Scholars program and honors in the College of Arts and Science may be obtained from Associate Dean Dan Morgan.

Departmental Honors

To encourage individual development and independent study within their field, many departments and interdisciplinary programs of the College of Arts and Science offer honors programs for selected, superior candidates. Students often begin departmental honors work in the junior year, but some projects start in the senior year. To qualify for consideration, students must have (a) attained a minimum grade point average of 3.300 in all work previously taken for credit and in the major, and (b) exhibited to the department(s) and/or interdisciplinary program(s) other evidence of the student’s capacity for independent study. Some departments and interdisciplinary programs require higher grade point averages in all work previously taken for credit and/or in the major. Formal admission is by the director of honors study in the Dean’s Office of Undergraduate Education after nomination by the department(s) and/or interdisciplinary program(s) concerned.

Requirements to complete departmental honors vary from department to department (see descriptions in the appropriate department sections of this catalog). Candidates are required to demonstrate some degree of originality and maturity in the methods of independent investigation, analysis, and criticism, and skill in the written presentation of independent work. This standard usually requires a senior thesis but may be satisfied, in departments that have gained approval of this procedure, by a series of briefer critical papers.

Departmental honors work culminates in an examination given in the second semester of the senior year. The examination shall be both oral and written except in departments where honors students must take all courses required of standard majors in addition to those required of honors students. These departments have the option of making the examination either oral or both oral and written. The examination shall be conducted by a committee with a majority of examiners who have not participated in the candidate’s honors work. Where feasible, examiners from other institutions may be included. The examination shall cover the thesis and specific fields of the independent work and may, at the discretion of the department, include all of the major work. Successful candidates are awarded honors or highest honors in their field, and this designation appears on their diplomas.

Dean’s List

The Dean’s List recognizes outstanding academic performance in a semester. Students are named to the Dean’s List when they earn a grade point average of at least 3.500 while carrying 12 or more graded credit hours, with no temporary or missing grades in any course (credit or non-credit), and no grade of *F*. A student must be in a degree-granting school.

Phi Beta Kappa

The Alpha Chapter of Phi Beta Kappa in the state of Tennessee honors scholarly attainments in the liberal arts and sciences and annually elects seniors and juniors to membership during the spring semester.

Seniors who have completed at least 60 credit hours in the College of Arts and Science and earned a cumulative grade point average of 3.65 or higher are eligible for consideration, as are juniors who have completed at least 70 credit hours at Vanderbilt with a cumulative grade point average of at least 3.90. Juniors must have completed most AXLE requirements by the end of their junior year. For calculating credit hours and judging residence requirements, the chapter treats foreign study programs in the same manner as does the College of Arts and Science.

Attainment of the minimum required grade point average does not guarantee election. Membership in Phi Beta Kappa is based on a demonstration of scholarly achievements, broad cultural interests, and high moral character. The scholarly work must emphasize liberal rather than applied or professional studies. As a guideline, for seniors at least 90 credit hours must qualify as liberal. Grades earned in applied (vocational) or professional course work are not counted in computing the grade point average. The breadth of a candidate's program, as shown by the number and variety of courses taken outside the major, is also considered.

Phi Beta Kappa has long emphasized the importance of mathematics and foreign language in a liberal education. In keeping with this tradition, the chapter considers only those students who have demonstrated proficiency in these areas beyond the AXLE graduation requirements. Proficiency in reading, writing, and speaking a foreign language is typically demonstrated by passing a course in a language at a level at least one semester beyond the AXLE requirements. Courses must be taken on a graded rather than a P/F basis. The foreign language requirement may be satisfied with College Board SAT Subject, Advanced Placement, International Baccalaureate, or Tennessee Language Center test scores.

Mathematics proficiency may be demonstrated by completing two semesters of calculus or one semester of calculus and one semester of statistics. Courses must be taken on a graded rather than a P/F basis. The mathematics requirement may be satisfied with Advanced Placement, International Baccalaureate, or A-Level exam credit, but not College Board SAT Subject test scores.

In no event may the total number of persons elected from any senior class exceed 10 percent of the class, and from any junior class exceed six persons. Eligible juniors who are not elected are reconsidered for membership in their senior year.

Refer to the chapter website my.vanderbilt.edu/phibetakappa for additional information and detailed eligibility criteria.

Honor Societies for First-Year Students

First-year students who earn a grade point average of 3.500 or better for their first semester are eligible for membership in the Vanderbilt chapters of Phi Eta Sigma and Alpha Lambda Delta.

Other Awards and Prizes

MORRIS H. BERNSTEIN JR. PRIZE IN LATIN DECLAMATION. Established in 1983 by William H. Bernstein (B.A. 1983) in memory of his father (B.A. 1943, M.D. 1946). Awarded after a competition, open to any undergraduate who has studied two semesters of Latin, in which participants deliver from memory Latin passages selected to reflect classical ideals.

FOUNDER'S MEDAL FOR ORATORY. Awarded to the senior who has demonstrated the highest standard in public speaking.

FRENCH GOVERNMENT PRIZES. Awarded for excellence in French studies.

EDWIN S. GARDNER MEMORIAL PRIZE FOR EXCELLENCE IN FRENCH. Awarded to a graduating senior who majored in French.

ALEXANDER HEARD AWARD. Presented annually to the outstanding senior political science major.

RICHARD J. LARSEN AWARD FOR ACHIEVEMENT IN UNDERGRADUATE MATHEMATICS. Established in 2005 to honor the commitment to undergraduate education of Richard J. Larsen, member of the faculty from 1970 to 2005. Presented each spring to the senior math major judged by the faculty to have excelled in all aspects of undergraduate mathematics.

AVERY LEISERSON AWARD. Presented for the best research paper or essay written by an undergraduate in a political science course.

MERRILL MOORE AWARD. Endowed in 1961 by Mrs. Merrill Moore, Squantum, Massachusetts, in memory of her husband. Presented to a graduating senior or a student entering the junior or senior class, selected by the Department of English on the basis of “literary promise and the psychological or practical usefulness of the award” to the student.

DANA W. NANCE PRIZE FOR EXCELLENCE IN A PREMEDICAL CURRICULUM. Endowed in 1985 by the family and friends of Dana W. Nance (B.A. 1925, M.D. 1929). Awarded annually to a student who has demonstrated the perseverance to succeed in a premedical curriculum and who embodies the attributes of a caring physician.

JUM C. NUNNALLY AWARD. Established in 1987 in memory of this professor of psychology from 1960 to 1982. Presented to a graduating senior in the honors program of the Department of Psychology for the best research project.

DONALD E. PEARSON AWARD. Presented annually to a graduating senior in chemistry adjudged the most distinguished in undergraduate research in chemistry.

PHI BETA KAPPA FRESHMAN SEMINAR AWARD. Awarded annually to students who have done outstanding creative work in freshman seminars.

AWARD FOR OUTSTANDING RESEARCH IN MOLECULAR BIOLOGY. Presented to a senior in molecular biology for outstanding research performed as part of the major program in molecular biology.

OUTSTANDING SENIOR IN CHEMISTRY AWARD. Presented annually to that graduating senior in chemistry who, in the opinion of the faculty of the Department of Chemistry, shows most promise of an outstanding career.

HENRY LEE SWINT PRIZE. Awarded since 1978 for the best essay in history.

STANLEY AND ANN T. TARBELL PRIZE IN ORGANIC CHEMISTRY. Awarded annually to a graduating senior who has excelled in organic chemistry by earning the highest grades in courses or performing outstanding research in organic chemistry.

UNDERWOOD MEMORIAL AWARD. Endowed in 1961 by the late Newton Underwood in memory of his father, Judge Emory Marvin Underwood, long-time member of the Board of Trust. The cash award is given to the most deserving and most promising graduating senior or graduate student in physics.

SUSAN FORD WILTSHIRE PRIZE. Cosponsored by the Gender and Sexuality Studies program and the Women's Faculty Organization, this award is given annually for the best undergraduate essay that deals with gender issues.

KATHARINE B. WOODWARD PRIZE. Awarded since 1943 and endowed in 1962 by Miss Katharine B. Woodward, Class of 1919, for excellence in Spanish studies.

MARGARET STONEWALL WOOLDRIDGE HAMBLET AWARD. Endowed in 1983 by Clement H. Hamblet in memory of his late wife, who began her art studies at Peabody College. The award is given to a graduating student of outstanding merit in studio art to enable the pursuit of his or her creative development through one year of extensive travel and further studies in studio art.

Honors in the School of Engineering

Founder's Medal

The Founder's Medal, signifying first honors, was endowed by Commodore Cornelius Vanderbilt as one of his gifts to the university. The recipient is named by the dean after consideration of faculty recommendations and the grade point averages of the year's summa cum laude graduates.

Latin Honors Designation

Honors noted on diplomas and published in the Commencement Program are earned as follows:

Summa Cum Laude. Students whose grade point average equals or exceeds that of the top 5 percent of the previous three years' School of Engineering graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous three years' School of Engineering graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous three years' School of Engineering graduating seniors.

Dean's List

The Dean's List recognizes outstanding academic performance in a semester. Students are named to the Dean's List when they earn a grade point average of at least 3.500 while carrying 12 or more graded hours, with no temporary or missing grades in any course (credit or non-credit) and no grade of *F*.

Honor Societies

ALPHA ETA MU BETA*,* the National Biomedical Engineering Honor Society, was installed at Vanderbilt University in 1998 and re-established in 2019. AEMB was established in 1979 to recognize and encourage excellence in the field of biomedical engineering and bioengineering.

TAU BETA PI. The Tennessee Beta chapter of the Tau Beta Pi Association was installed at Vanderbilt University 7 December 1946. Members of Tau Beta Pi are selected from undergraduate students in the School of Engineering who have completed at least four semesters of required work, are in the upper eighth of their class scholastically, and have shown marked qualities of character and leadership; seniors in the upper fifth of their class scholastically are also eligible for election.

CHI EPSILON. The Vanderbilt chapter of Chi Epsilon, installed 18 March 1967, is restricted to undergraduate civil engineering students in the top third of their class. Election is based on grade point average, faculty recommendation, and exceptional achievements in extracurricular campus activities.

ETA KAPPA NU. The Epsilon Lambda chapter of the Eta Kappa Nu Association was established 22 April 1966. Undergraduate members are selected from the upper third of the class in electrical and computer engineering. Eta Kappa Nu recognizes leadership and scholastic accomplishment twice annually, selecting members also from the professional body of practicing engineers.

PI TAU SIGMA. The Delta Alpha chapter of Pi Tau Sigma was installed on the Vanderbilt campus 22 April 1971, for the purpose of recognizing scholastic achievement and professional promise in junior and senior mechanical engineering students. Students are elected to membership twice each year on the basis of academic excellence and recommendations from the faculty and chapter members.

SIGMA XI. The Vanderbilt chapter of the Society of the Sigma Xi recognizes accomplishment, devotion, and originality in scientific research. Associate members are elected annually from graduate-level students of the university.

HONOR SOCIETIES FOR FIRST-YEAR STUDENTS. First-year students who earn a grade point average of 3.5 or better for their first semester are eligible for membership in the Vanderbilt chapter of Phi Eta Sigma and Alpha Lambda Delta.

Other Awards and Prizes

DEAN’S AWARD FOR OUTSTANDING SERVICE. Awarded to the senior candidate in the School of Engineering who has shown remarkable leadership qualities and who has also made the greatest contribution in personal services to the School.

DEAN’S AWARD FOR OUTSTANDING SCHOLARSHIP. Awarded to each member of the senior class who graduates summa cum laude.

PROGRAM AWARDS. The faculty associated with each of the departments of the school annually bestows a certificate and a prize to one member of the graduating class who is judged to have made the greatest progress in professional development during his or her undergraduate career.

AMERICAN INSTITUTE OF CHEMISTS AWARD. Awarded to an outstanding undergraduate student majoring in chemical engineering on the basis of a demonstrated record of leadership, ability, character, scholastic achievement, and potential for advancement of the chemical professions.

GREG A. ANDREWS MEMORIAL AWARD. Endowed in 1969 and awarded to the senior in civil engineering who has been judged by the faculty to have made the greatest progress in professional development and who plans to do graduate work in environmental and water resources engineering.

THOMAS G. ARNOLD PRIZE. Endowed in 1989 and awarded by the biomedical engineering faculty to the senior who presents the best design of a biomedical engineering system or performance of a research project in the application of engineering to a significant problem in biomedical science or clinical medicine.

WALTER CRILEY PAPER AWARD. Endowed in 1978 and awarded in electrical and computer engineering for the best paper on an advanced senior project in electrical engineering.

JAMES SPENSER DAVIS AWARD. Given annually by the student chapter of Eta Kappa Nu in memory of Mr. Davis, this award recognizes excellence in the undergraduate study of electronics.

ARTHUR J. DYER JR. MEMORIAL PRIZE. Endowed in 1938 and awarded in civil engineering to the member of the senior class doing the best work in structural engineering.

WALTER GILL KIRKPATRICK PRIZE IN CIVIL ENGINEERING. Endowed and awarded in the School of Engineering to the most deserving third-year undergraduate student in civil engineering.

WILLIAM A. MA AWARD. Awarded to an outstanding senior majoring in chemical engineering on the basis of a demonstrated record of leadership and scholastic achievement.

WILSON L. AND NELLIE PYLE MISER AWARD. Awarded to the senior engineering student who has been judged by the faculty of mathematics to have excelled in all aspects of mathematics during his or her undergraduate career.

STEIN STONE MEMORIAL AWARD. Endowed in 1948 and awarded in the School of Engineering to the member of the graduating senior class who has earned a letter in sports, preferably in football, and who is adjudged to have made the most satisfactory scholastic and extramural progress as an undergraduate.

ROBERT D. TANNER UNDERGRADUATE RESEARCH AWARD. Awarded to a senior who, in the judgment of the chemical engineering faculty, has conducted at Vanderbilt University the best undergraduate research project.

W. DENNIS THREADGILL AWARD. Awarded to a graduating chemical engineering senior for outstanding achievement in the undergraduate program in honor of a former faculty member and department chair.

Human and Organizational Development (Peabody)

CHAIR Nicole E. Allen

ASSOCIATE CHAIR Nicole A. Cobb

DIRECTOR OF GRADUATE STUDIES Brian D. Christens

DIRECTOR OF UNDERGRADUATE STUDIES Leigh Z. Gilchrist

The Human and Organizational Development (HOD) major prepares students to address complex social problems in organizations and communities. The HOD curriculum challenges students to view human problems and their solutions in organizations and communities. The HOD curriculum challenges students to view human problems and their solutions as embedded in broader social ecological systems. HOD coursework draws on a range of disciplinary perspectives (e.g., psychology, organizational studies, sociology, political science, anthropology, geography, economics), and explores societal issues across distinct levels of analysis (e.g., individual, group, organization, community, policy, international). HOD coursework engages students through active learning approaches involving teams, simulations, case studies, field experiences, and interaction with academic researchers and professionals in the field. These experiences support the development of the following *HOD Core Competencies* that will help students succeed in people-oriented organizational roles:

1. *Written communication* - with emphasis on developing a clear, concise, expository style and mastering the practical forms used in professional situations.
2. *Oral presentation* - with emphasis on making informative and persuasive presentations with the effective

use of technology and media.
3. *Analytic and critical thinking* - with emphasis on data-driven analysis, creativity, and systems thinking to recognize, define and work to solve personal, professional, organizational, and social problems.
4. *Interpersonal communication* - with emphasis on inquiry, advocacy, leadership, and conflict resolution skills.
5. *Collaborative work behaviors* - with emphasis on motivating others, managing talent, and teamwork.

CURRICULUM

Peabody Liberal Education Core Requirements (40 hours)

The Liberal Education Core provides students with a strong liberal arts foundation. It is composed of required coursework from the areas of Communications, Humanities, Quantitative Analysis, Natural Science, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (peabody.vanderbilt.edu/admin-offices/oas/downloads.php). In addition, students must complete two writing intensive courses. See the "Writing Requirement" section of the general Peabody academic policy section of the Undergraduate Catalog.

HOD Major Requirements (45-48 Hours)

Human and Organizational Development Professional Core (15 hours): The HOD Core introduces students to ecological systems thinking, theories of human, group, community, organizational, and policy development, and quantitative & qualitative approaches to research and problem solving. Courses include: HOD 1250 *Applied Human Development*; HOD 1300 *Small Group Behavior*; HOD 2100, *Understanding Organizations*; and HOD 2500 *Systematic Inquiry*; HOD 2700 *Public Policy*. These courses are designed to help students:

1. Understand the basic principles and typical patterns of human development across the life span and use this knowledge to understand their own behavior and the behavior of others;
2. Understand the principles of group dynamics and use this knowledge to provide leadership and facilitate decision making in small group and team settings;
3. Understand theories of organizations and apply them to the solution of organizational problems;
4. Understand the critical role that community contexts play in shaping individual, group, and organizational well-being;
5. Apply quantitative and qualitative methods of systematic inquiry and analysis;
6. Understand public policy processes and the factors that influence policy making;
7. Understand the ethical dimensions of personal and organizational decisions and apply this understanding to analyze social issues and make professional and personal decisions;
8. Develop enhanced skills of synthesis including the ability to integrate ideas from various sources and to design innovative programs.
9. Understand and engage in practices and policies that ensure inclusion of diverse populations and perspectives.

The program design will endow you with the skills and knowledge needed to succeed in a people-oriented organizational role.

Human and Organizational Development Domains (18 Hours): Domain courses build on the foundational courses in the HOD Professional Core. Students will choose courses that will help them develop breadth and depth across levels of analysis in topic areas of interest. Students must complete two courses in each of the following three domains:

Individual/Interpersonal Domain: Courses in this domain delve deeper into personal and professional development and explore topics, including but not limited to, leadership, professional ethics, youth development, professional development, and mental health and well-being. Through these courses students will develop professional skills in data management, research, individual and team leadership, human-centered design, and interpersonal conflict resolution.

Organizational/Group Domain: Courses in this domain explore recent advances in organizational theory and

innovative management strategies in for-profit, non-profit, and public sector organizations in the U.S. and international contexts. Course topics include, but are not limited to organizational effectiveness, organizational change management, and social entrepreneurship. Courses use case studies and practical application to prepare students to engage organizational challenges in an increasingly complex and dynamic world.

Community/Policy Domain: Courses in this domain invite students to critically examine the causes and consequences of complex social problems from a systems perspective and explore community- and policy-level approaches to change and intervention. Courses address a range of local and global topics and consider the diverse perspectives of marginalized communities. These topics include, but are not limited to educational equity, environmental justice and sustainability, violence prevention, and economic development, as well as poverty-related challenges such as fair and affordable housing, employment, health disparities, transportation, neighborhood safety, and resource provision.

Human and Organizational Development Capstone: *(12 credit hours/Summer or 15 credit hours/Fall or Spring semesters)*: The Capstone is the immersive learning academic semester for junior and senior students in the Human and Organizational Development (HOD) major at Vanderbilt University. It is designed for students to apply the core HOD coursework and develop data-driven and research-grounded contributions to address human problems in organizations and communities. The HOD capstone requires 28 hours a week with the confirmed site and a weekly 3-hour seminar. The experience is possible in fall, spring or summer semesters. The HOD Capstone office has preexisting relationships with sites in Nashville, Chicago, New York City, San Francisco, Washington D.C. and London, England. However, students are not limited to these cities.

The HOD philosophy emphasizes the importance of connecting academic knowledge and theories to professional practice. HOD undergraduate core requirements offer an applied liberal arts education that will endow students with the skills and knowledge needed to succeed in organizations and communities. The capstone semester is designed to provide students the opportunity to synthesize the HOD coursework and learning experiences in an organizational context - which is central to the foundation of the applied learning experience and mission of our degree.

HOD majors (juniors and seniors) who have successfully completed the HOD 4949 Capstone Design requirements, approved for the HOD Capstone by the HOD Capstone Office, and completed the HOD core class prerequisites including HOD 1250, 1300, 2100, 2400 (not required for students who entered Summer 2023 or later), 2500, and 2700 are eligible to register for HOD 4950, 4951, 4952 and 4953.

Students enroll in a semester-long course, HOD 4949, prior to the capstone semester to explore, develop and confirm a successful capstone search. They partner with the HOD Capstone team for mentoring, coaching, connection events, and a variety of campus partners to confirm their capstone site. The capstone semester provides a variety of opportunities for students to integrate and apply earlier coursework in a civic/professional, research, international or creative partnership. Students design their capstone to align with their field of interest. They select opportunities that provide valuable applied work experiences, build professional development competencies, and help launch their post-graduation careers. During the HOD capstone semester, students enroll in four courses that accompany their capstone experience: HOD 4950 (P/F - 3 credit hours during summer; 6 hours during fall or spring) *Organizational Partnership*, HOD 4951 (3 hours) *Critical Reflexivity and Systems Thinking*, HOD 4952 (3 hours) *Mapping Future Development*, and HOD 4953 (3 hours) *Analysis and Contribution*. For additional information on the HOD Capstone visit our website HERE.

Honors Program

The HOD Honors Program is designed for highly motivated students who want to pursue intensive research. It offers outstanding undergraduate HOD majors an opportunity to become involved in research teams with professors and graduate students. The program will help students develop skills in empirical research methods, writing, and presentation to provide a firm foundation for advanced graduate or professional training. The HOD Honors Programs requires a serious time commitment to a research project.

Application: Students may apply for the honors program at any time from the second semester of their

sophomore year to the summer before their senior year. The application must be approved by the faculty member with whom the student will work, and will outline the nature of the research project, which will ordinarily be an extension of the faculty member's ongoing research. Students must have completed HOD 1250, HOD 1300, HOD 2100, HOD 2500, and a college statistics course and have an overall GPA of at least 3.6. This minimum GPA must be maintained to graduate with honors.

Applications will be evaluated by the HOD Honors Director, who will decide on admission, taking into consideration the numbers of applicants.

Requirements: Upon admission students will complete two (not necessarily back-to-back) semesters of honors seminar (for six total hours of credit), which satisfy one course in two HOD domains of the student's choosing, plus the writing course requirement. In the course, they will learn advanced research methods. In addition to the honors seminar, the student will work with the faculty sponsor on research for up to ten hours per week. Students must complete a pilot study (first semester) and an empirical (quantitative or qualitative) honors thesis (second semester) that is approved by two faculty readers, and orally present both pilot study and thesis. Although not required, honors projects may be coordinated with the HOD Capstone with permission of the instructor, the student's Honor's advisor, and HOD Capstone Director, and may be taken in the same semester as Capstone. Students are additionally encouraged to attend departmental colloquia and to take at least one graduate course in their area of interest.

Awards of departmental Honors in HOD will depend on successful completion of the course and the thesis. Highest Honors and Best HOD Honors Thesis may be awarded by vote of the Honors Committee.

The Minor in Human and Organizational Development

The HOD minor requires 15 unique hours that are not counted toward any other major or minor. The minor in human and organizational development consists of 18 hours in the following courses:

REQUIRED COURSE. *3 hours.*

HOD 1250. Applied Human Development

CHOOSE TWO ADDITIONAL CORE COURSES. *6 hours.*

HOD 1300. Small Group Behavior

HOD 2100. Understanding Organizations

HOD 2500. Systematic Inquiry

HOD 2700. Public Policy

Domain Courses: *9 hours.*

Students will choose 3 HOD Domain level courses to count towards the HOD minor.

Human and Organizational Studies

Human and Organizational Studies (HOS) is an alternative major that is available only to Human and Organizational Development (HOD) majors who, due to extenuating circumstances, are unable to complete the required HOD capstone internship after it is too late to complete a new first major. This alternative is initiated and approved by the director of the HOD Capstone Program and the Director of Undergraduate Studies for HOD. In lieu of the HOD Capstone, students complete 30 hours of upper level approved HOD courses.

Students must complete the Human and Organizational Development liberal education core, the writing requirement, and earn a minimum of 120 hours and a 2.0 cumulative GPA.

Interdisciplinary Majors (Peabody)

Peabody College, in conjunction with the College of Arts and Science, offers four interdisciplinary majors. These majors are to be taken as second majors only and are constructed around academic disciplines particularly appropriate for future teachers (except secondary), but are not limited to students entering teacher education. The interdisciplinary major consists of 36 hours of study and draws upon the academic resources of a number of departments throughout the University. Students follow the Liberal Education Core requirements of their first major.

Language and Literacy Studies (36 hours)

COMMUNICATIONS.

6 hours from:

CMST 1500, Fundamentals of Public Speaking; CMST 1850 Interpersonal Communications

ENGLISH.

9 hours from:

ENGL1230W, 1270W or 1260W and 1250W and 3210 and above

EDUCATION.

9 hours from:

ENED 2100, 2200 or 4963 (3 hours); ENED 2430, ENED 3310 (3 hours); SPED 2430 or PSY-PC 3150 (3 hours)

ADDITIONAL COURSES

12 hours from two areas:

ANTH 1601, Introduction to Language and Culture; ANTH 2601, Introduction to Linguistics; ANTH 2602, Anthropological Linguistics; ANTH 2603 Comparative Writing Systems; CMST 2800, Rhetoric of Civic Life; CMST 3000, Rhetoric of American Experience, 1640-1865; CMST 3001, Rhetoric of American Experience, 1865-1945; CMST 2900, Values of Modern Communication; CMST 3002, Rhetoric of the American Experience 1945-Present; CMST 2950, Rhetoric of Mass Media; PHIL1003, General Logic; PSCI 2242, Political Communication; THTR 1010, Fundamentals of Theatre

Mathematics and Science Studies (35–37 hours)

BIOLOGICAL SCIENCES.

4 hours from:

BSCI 1100 and 1100L, Biology Today; BSCI 1105, Human Biology; BSCI 1510 and 1510L, or BSCI 1511 and 1511L, Introduction to Biological Sciences; BSCI 1103, Green Earth, the Biodiversity and Evolution of Green Plants

CHEMISTRY.

4 hours from:

CHEM1010L and 1010, or CHEM 1020L and 1020, Introductory Chemistry; CHEM 1601 and 1601L, or CHEM 1602 and 1602L, General Chemistry

PHYSICS.

4 hours from:

PHYS 1010 and 1010L, Introductory Physics; PHYS 1601 and 1601L or 1602 and 1602L, General Physics

EARTH AND SPACE SCIENCES.

3-4 hours from:

ASTR 1010 and1010L, Introductory Astronomy: Stars and Galaxies; EES 1510 and 1510L, The Dynamic Earth; EES 1030 and 1030L, Oceanography; EES 1080, Earth and Atmosphere; EES 1140, Ecology, Evolution, and Climate through Time

HISTORY/ PHIILOSOPHY OF SCIENCE.

3 hours from:

ASTR 2130, Theories of the Universe; HIST 2800, Modern Medicine; PHIL 3616, Philosophy and the Natural Sciences

CALCULUS.

8-9 hours from:

MATH 1200, 1201, and 2200, Single-Variable Calculus I, II, and III; MATH 1300 and 1301, Accelerated Single-Variable Calculus I and II

PROBABILITY AND STATISTICS.

3 hours from:

MATH 2820 Introduction to Probability and Mathematics Statistics; MATH 3700, Discrete Mathematics; PSY-PC 2110 Introduction to Statistical Analysis

GEOMETRY.

3 hours from:

MATH 3200, Introduction to Topology; MATH 3210, Transformation Geometry; MATH 3310, Introduction to Mathematical Logic

ALGEBRA

3 hours from:

MATH 2410, Methods of Linear Algebra; MATH 2600, Linear Algebra; MATH 3300, Abstract Algebra

Natural Science Studies (35–36 hours)

BIOLOGICAL SCIENCES.

8 hours from:

BSCI 1100/1100L, Biology Today; BSCI 1105, Human Biology; BSCI 1510 and 1510L, and/or 1151 and 1151L, Introduction to Biological Sciences; BSCI 1103, Green Earth, the Biodiversity and Evolution of Green Plants

CHEMISTRY.

8 hours from:

CHEM 1010L and 1010 and/or 1020L/1020, Introductory Chemistry; CHEM 1601 and 1601L and/or 1602 and 1602L, General Chemistry

PHYSICS.

4 hours from:

PHYS 1010 and1010L, Introductory Physics; PHYS 1601/1601L or 1602 and 1602L, General Physics

EARTH AND SPACE SCIENCES.

3-4 hours from:

ASTR 1010/1010L Introductory Astronomy: Stars and Galaxies; EES 1510 and 1510L, The Dynamic Earth; EES 1030 and 1030L, Oceanography; EES 1080 Earth and Atmosphere; EES 1140, Ecology, Evolution, and Climate through Time

HISTORY/ PHIILOSOPHY OF SCIENCE.

3 hours from:

ASTR 2130, Theories of the Universe; HIST 2800, Modern Medicine; PHIL 3613, Philosophy and the Natural Sciences

ELECTIVES.

9 hours (3 additional courses) in:

Astronomy, Biological Sciences, Chemistry, Earth and Environmental Sciences, Physics, or History and Philosophy

Second Language Studies (36 hours)

EDUCATION.

9 hours from:

EDUC 3730, ELL Educational Foundations; EDUC 3750, Linguistics and Language Acquisition for ELL Teachers; ENGL 1260W, Introduction to Literary and Cultural Analysis

PSYCHOLOGY.

3 hours from:

PSY-PC 1250, Developmental Psychology; PSY-PC 2600, Educational Psychology

LINGUISTICS.

3 hours from:

ANTH 1101, Introduction to Linguistics; ENED 2430, Fostering Language in Diverse Classrooms; SPED 2430, Introduction to Language and Communication

FOREIGN LANGUAGE.

12 hours of language courses from:

Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Portuguese, Russian, or Spanish

ELECTIVES.

9 hours of elective courses are to be selected to reflect a concentration

within a specific foreign language. Students MUST consult with their advisers when selecting elective hours.

For elementary majors seeking an added endorsement in ELL, in addition to the above major requirements, the following 9 hours are required: EDUC 3740, ELL Methods and Materials (3 hours); EDUC 3760, Assessment of ELL (3 hours); EDUC 3731, 3742, and 3763, Practicum for ELL (3 hours)

Social Studies (36 hours)

Students selecting an interdisciplinary major in social studies will have seven options available to them. Each option requires 18 hours of study focused on a single social science discipline that is supplemented with 18 hours of course work drawn from studies within other social sciences. The seven options available to students include a focus on any of the following areas of study: Anthropology, Economics, American History, European History, American Politics, World Politics, or Sociology.

Anthropology

9 hours from:

ANTH 1101, Introduction to Anthropology; ANTH 1201 Introduction to Archaeology; ANTH 1301, Introduction to Biological Anthropology

9 hours in specified courses:

A Comparative Anthropology and Anthropological Theory Course (3 hours) An Archaeology and Physical Anthropology Course (3 hours)

An Ethnography, Ethnohistory, and Linguistics Course (3 hours)

Six courses (18 hours) drawn from at least three areas: Economics, History, Political Science, and Sociology

Economics

9 hours required from:

ECON 1010, Principles of Macroeconomics; ECON 1020, Principles of Microeconomics; ECON1500, Economic Statistics Additional 9 hours in Economics Courses

Six courses (18 hours) drawn from at least three areas: Anthropology, History, Political Science, and Sociology

United States History

6 hours from:

HIST 1390, America to 1776; HIST 1400, U.S. 1776-1877; HIST 1410, U.S. 1877-1945; HIST 1420, U.S. Post-1945

Additional four courses (12 hours) of United States History courses from:

HIST 1390-1440, 1660, 1690, 1720, 1730, 2580, 2590, 2610-2650, 2690-2722

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, Political Science, and Sociology

European History

6 hours from:

HIST 1350, History of Western Civilization to 1700; HIST 1360, History of Western Civilization since 1700

Additional four courses on European History from:

HIST 1600, 2130 2135, 2220-2410

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, Political Science, and Sociology

American Politics

3 hours from:

PSCI 1100, Intro. to American Government and Politics

Any five (15 hours) of the following PSCI courses: 2204, 2222, 2240-2246, 2248, 2251, 2255, 2256, 2259, 2262, 3247, 3249, 3250, 3252-3254,

3258, 3260, 4275

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, and Sociology

World Politics

3 hours from:

PSCI 1101, Introduction to Comparative Politics; PSCI 1102, Introduction to International Politics

Any five (15 hours) of the following PSCI courses: 2210, 2212-2216, 2218-2227, 2230-2234, 2236, 3211, 3217, 3228, 3229, 3235 Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, Sociology

Sociology

6 hours from:

SOC 1010, Introduction to Sociology, or SOC 1020, Contemporary Social Problems (3 hours); SOC 3001, Sociological Perspectives (3 hours)

4 courses (12 hours) 3 hours from each of the following areas:

A sociology course drawn from the core area of Crime, Law, and Deviance

A sociology course drawn from the core area of Organizations, Politics, and Inequality A sociology course drawn from the core area of Family, Medicine, and Mental Health A sociology course drawn from the core area of Culture and Social Change

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, and Political Science

Interdisciplinary Studies

Any student who is at least a sophomore and in good academic standing may earn one credit hour per semester or summer for an internship completed under the designation INDS 3880/3884 (summer) exclusively on a Pass/Fail basis. This course may be repeated twice for a maximum of three credit hours. Students are responsible for obtaining their own internship and faculty adviser. The student and faculty adviser work together to plan the academic project associated with the internship. Their agreement must be approved by Associate Dean Daniel Morgan.

COURSES OFFERED: INDS

Jewish Studies

CHAIR Allison Schachter

DIRECTOR OF UNDERGRADUATE STUDIES: Rebecca Epstein-Levi

PROFESSORS David Price, David J. Wasserstein

ASSOCIATE PROFESSORS Phillip Ackerman-Lieberman, Julia Phillips Cohen, Ari Joskowicz, Shaul Kelner, Adam Meyer, Allison Schachter

ASSISTANT PROFESSORS Rebecca Epstein-Levi, Mazalit Haim

SENIOR LECTURER Judith Klass

COURSES OFFERED: HEBR, JS

Jewish Studies at Vanderbilt offers an interdisciplinary academic program that facilitates the critical study of Jewish history, religion, language, philosophy, politics, culture, society, music, art, and literature across continents and over three millennia. Integral to understanding crucial moments in the formation of Christianity and Islam as well as distinct episodes in the cultures of the modern Middle East, Europe, and America, the program accesses the resources of the entire university to explore Judaism, its evolution and expression from biblical times to the present. This interdisciplinary program reflects Vanderbilt's commitment to advancing the understanding of diverse cultures and traditions. Students of all backgrounds will find in Jewish Studies at Vanderbilt a wide array of material and methodologies, presented by scholars from history, anthropology, sociology, religious studies, philosophy, literature, and history of art. Students may focus on several areas of concentration and tailor the major to their academic and career interests. They also have access to courses offered by the schools of divinity, education, and music; they have access to the Zimmerman Judaica collection as well as the opportunity to study abroad, pursue internships locally or nationally, and do research in archives

overseas. The interdisciplinary nature of Jewish Studies offers excellent preparation for graduate studies and provides an outstanding academic foundation for a variety of rewarding career paths. Visit as.vanderbilt.edu/jewishstudies for more details.

Program of Concentration in Jewish Studies

The major in Jewish studies requires a minimum of 30 credit hours.

1. *Introductory course, 3 credit hours.* JS 1002 or 1002W, Introduction to Jewish Studies, JS 1010: Introduction to Judaism, or JS 1040: Introduction to Modern Jewish History.
2. *Language, 6 credit hours.* A year of modern Hebrew (Hebrew 2201–2202, Intermediate Hebrew) or biblical Hebrew (REL 5120, Intermediate Hebrew).* Proficiency at the level of intermediate Hebrew can be demonstrated through testing. If this option is exercised, students will take an additional 6 credit hours of electives toward the major. *In place of biblical or modern Hebrew, interested students may substitute one of the following languages of the Jewish people: Rabbinic Hebrew, Aramaic, Yiddish, Ladino, or Judaeo-Arabic. For languages not presently taught at Vanderbilt, proficiency at the intermediate level may be demonstrated through an exam administered by a designated member of the Jewish Studies faculty. If this option is exercised, students will take an additional 6 credit hours of electives toward the major.
3. *Electives (minimum of 21 credit hours)*—Any of the courses listed below that are not used to fulfill another requirement towards the major may be counted as an elective with the exception of JS 3880, which cannot count toward the major because it must be taken Pass/Fail. In addition to courses drawn from Arts and Science departments and the professional schools, nontraditional course work may also be selected, including archaeology at Tel Megiddo (Israel), service learning, and internships. Study abroad is encouraged and can be fulfilled with CET Jewish Studies in Prague and at the Hebrew University of Jerusalem.

Honors Program

The Honors Program in Jewish Studies offers superior students a more intensive concentration within their major field. Admission to the program requires:

1. A 3.3 cumulative grade point aveage.
2. A 3.3 cumulative grade point average in Jewish Studies.
3. Completion of the junior year.

Requirements for graduation with honors in Jewish Studies are:

1. 6 credit hours in Honors sections (JS 4980–4981), including completion of thesis—these credit hours may count as elective credit toward the major. Honors thesis is to be completed by mid-spring of the senior year.
2. Successful completion of an honors oral examination on the topic of the thesis.

Minor in Jewish Studies

The minor in Jewish studies provides a basic understanding of Jewish history and culture across continents and the past three millennia. The minor requires a minimum of 18 credit hours.

1. *Introductory course, 3 credit hours.* JS 1002 or 1002W, Introduction to Jewish Studies, JS 1010: Introduction to Judaism, or JS 1040: Introduction to Modern Jewish History.
2. *Electives (minimum of 15 credit hours).* Any of the courses listed below that are not used to fulfill another requirement toward the minor may be counted as an elective. Special Topics courses or First-Year Writing Seminar courses dealing with topics related to Jewish studies may be counted with the approval of the program director.

LANGUAGE:

Jewish Studies: 4301, Jewish Language and Paleography.

Hebrew (Modern Hebrew): 1101–1102, Elementary Hebrew; 2201–2202, Intermediate Hebrew; 2301, Advanced Hebrew Grammar; 2302W, Advanced Hebrew Composition; 3851–3852; Independent Study in Modern Hebrew.

ELECTIVES:

Jewish Studies: 1002 or 1002W, Introduction to Jewish Studies; 1010, Introduction to Judaism, or 1040, Introduction to Modern Jewish History; 1111.01, In a Pluralistic Age: Jews, Christians, and Muslims in Spain; 1111.02, Music and Identity in Jewish Traditions; 1111.03, Radical Jews from Karl Marx to Noam Chomsky; 1111.04, Civil Rights and Civil Wrongs: Black–Jewish Relations in the 1950s and 1960s; 1111.05, Gender, Sexuality, and Desire in Jewish Literature; 1111.06, Reading across the Boundaries: Arab and Israeli Literature and Culture; 1111.07, From Einstein to Chomsky: Revolutionary Sciences in Jewish America; 1111.09, Jews and Muslims: A Modern History; 1111.10, Jewish Response to Catastrophe; 1111.12, Jews and Hollywood; 1200, Classical Judaism: Jews in Antiquity; 1111.13, The Cold-War Struggle to Free Soviet Jews; 1210W, The Bible as Literature/The Bible and Literature; 1220, Jews in the Medieval World; 2100, The New Testament in Its Jewish Contexts; 2150, Issues in Rabbinic Literature; 2210W, Hebrew Literature in Translation; 2220, Israeli Culture Through Film; 2230W, American Southern Jews in Life and Literature; 2240W, Black–Jewish Relations in Post-War American Literature and Culture; 2250W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors; 2260, Coming of Age in Jewish Literature and Film; 2260W, Coming of Age in Jewish Literature and Film; 2270, Jewish Storytelling; 2270W, Jewish Storytelling; 2280, Jewish Humor; 2280W, Jewish Humor; 2290W, Imagining the Alien: Jewish Science Fiction; 2300, Modern Jewish Thought; 2320, Freud and Jewish Identity; 2330, Is G–d Guilty? The Problem of Evil in Judaism; 2340, Jewish Philosophy after Auschwitz; 2400, American Jewish Life; 2420W, American Jewish Music; 2450, The Jewish Diaspora; 2500, Modern Israel; 2520, Zionism: Politics, Religion, and Ethnicity; 2540, Power and Diplomacy in the Modern Middle East; 2560, Social Movements in Modern Jewish Life; 2600, Islam and the Jews; 2620, Jews in Egypt; 2640, Jews and Greeks; 2700W, Judaism and Medicine; 3000, Major Themes in Jewish Studies; 3100, The Holocaust; 3210, Reading across Boundaries: Jewish and Non-Jewish Texts; 3400W, Jerusalem; 3830, Contemporary Jewish Issues; 3883, Internship Research; 3890, Special Topics; 3892, Topics in Ancient and Medieval Jewish History; 3894, Topics in Modern Jewish History; 4301, Jewish Language and Paleography; 4960, Senior Seminar; 4970, Senior Project in Jewish Studies.

Anthropology: 3140, Myth, Ritual, Belief: The Anthropology of Religion.

Classics: 2100, History of the Ancient Near East; 2120, Greece and the Near East from Alexander to Theodosius; 2160, History of Roman Empire; 3010, The Ancient Origins of Religious Conflict in the Middle East.

English: 3370, The Bible in Literature; 3664, Jewish American Literature.

European Studies: 2208, Conspiracy Theories and Rumors in European and U.S. History.

French: 4430, Jews and Arab Muslims in France.

German: 1111, Representing the Holocaust; 2443, German Cinema: Vampires, Victims, and Vamps; 2445, Nazi Cinema: The Manipulation of Mass Culture; 3344, Women at the Margins: German Jewish Women Writers; 4574, Who Am I? German Autobiographies.

History: 1111.18, The Life, Science, and Times of Albert Einstein; 1190, A History of Islam; 1200, The Arab Spring; 2155, Muhammad and Early Islam; 2160, Medicine in Islam; 2170, Islam and the Crusades; 2190, Last Empire of Islam; 2280, Europe, 1900–1945; 2290, Europe since 1945; 2300, Twentieth-Century Germany; 2720, World War II; 3150, Cities of Europe and the Middle East; 3190, Religion, Culture, and Commerce: The World Economy in Historical Perspective; 3210, Muslims, Christians, and Jews in Medieval Spain.

History of Art and Architecture: 2260, The Art of Pagans, Christians, and Jews; 2765, Art since 1945.

Music Literature: 2150, Music, Identity, and Diversity; 2310, The Bible and Music.

Philosophy: 2101, Hellenistic and Late Ancient Philosophy; 2102, Medieval Philosophy; 2103, Modern Philosophy; 2109, Twentieth-Century Continental Philosophy; 3005, Jewish Philosophy; 3006, Islamic Philosophy; 3011, Critical Theory; 3607, Philosophy of Religion; 3657, Humanity, Evolution, and God.

Political Science: 2230, Middle East Politics; 2263, Religion and Politics; 3235, Political Islam.

Religion: 6511, Book of Genesis.

Religious Studies: 1111, First-Year Writing Seminar; 1200, Introduction to Judaism; 1208, Themes in the Hebrew Bible; 1500, Introduction to Islam; HUM1610, The Golden Age of Islam; 2210W, Constructions of Jewish Identity in the Modern World; 2220, Jewish Ethics; 2940, Great Books of Literature and Religion; 3225, Sexuality in the Hebrew Bible and the Ancient Near East; 3229, The Holocaust: Its Meanings and Implications; 3270, Jewish Theories of Religion; 3926, Ancient Goddesses; 3930, Women and Religion; 3940, The Nature of Evil; 3941, Religion, Science, and Evolution; 4552, Islam in the Modern World; 4834, Post-Freudian Theories and Religion; 4837, Psychology of Religious Myth and Ritual; 4938, Marriage in the Ancient Near East and the Hebrew Bible; 4939, Religious Autobiography.

Russian: 2434, The Russian Cinema.

Sociology: 3204, Tourism, Culture, and Place; 3222, Sociology of Religion; 3702, Racial and Ethnic Minorities in the United States.

Latin American Studies

DIRECTOR Celso T. Castilho

EXECUTIVE DIRECTOR Avery Dickins de Girón

ASSISTANT DIRECTOR Gretchen Selcke

LATIN AMERICAN BIBLIOGRAPHER Paula Covington

COURSES OFFERED: LAS

Designated by the U.S. Department of Education as a National Resource Center for Latin America, Vanderbilt's Center for Latin American Studies draws on departmental strengths and faculty expertise from across campus. Integrating teaching, research, and service, the center maintains substantive collaborations with all of Vanderbilt's colleges and schools. The center has special strengths in Maya studies, Brazilian studies, Andean studies, and the Black Atlantic, as well as unique library collections of Colombiana. Programs of instruction provided by the center promote greater understanding of the region's history, culture, political economy, and social organization and cultivate the ability to think strategically about global issues.

Faculty and courses come from the Departments of Anthropology, Economics, History, History of Art and Architecture, Political Science, Sociology, and Spanish and Portuguese as well as from Vanderbilt's education, engineering, law, management, medical, music, and nursing schools. The center fosters a lively research community on campus by sponsoring colloquia, conferences, films, and a speaker series that brings distinguished scholars, government and business leaders, artists, and social activists to campus.

For undergraduates, the Program in Latin American Studies offers an interdisciplinary undergraduate major and a minor in Latin American studies, as well as a minor in Brazilian studies. The program also offers summer opportunities in Brazil and Guatemala, and facilitates study abroad and service learning opportunities in Latin American countries. An honors program is available.

Program of Concentration in Latin American Studies

The major in Latin American studies consists of 36 credit hours plus a language requirement.

I. Language requirement	*demonstrated proficiency*
II. Core courses	*6 credit hours*
III. Distribution requirements	*12 credit hours*
IV. Area of concentration	*12 credit hours*
V. Electives	*6 credit hours*

Note: No course may be counted twice in calculating the 36 credit hours. Upon approval of the Committee on Individual Programs and the student's adviser, (a) as many as 6 credit hours may be counted as part of both the interdisciplinary major and a second major, or (b) normally, no more than three introductory-level courses will be counted toward the interdisciplinary major.

I. *Language Requirement.* A student must acquire advanced knowledge of one Latin American language (Spanish, Portuguese, Haitian Creole, or an indigenous language) and an intermediate knowledge in another Latin American language. The requirement to acquire advanced knowledge of a Latin American language may be satisfied by completing Spanish 3303, or any course with a higher number taught in Spanish, or any course with a higher number taught in Portuguese. The requirement to acquire intermediate knowledge of another Latin American language may be satisfied by successfully completing Spanish 2203, Portuguese 2203, Haitian Creole 2202, or K'iche' 2202. Individual standardized testing may also be used to demonstrate knowledge.

II. *Core Courses* (6 credit hours)

LAS 2101

LAS 4901

III. *Distribution Requirements* (12 credit hours). Two relevant classes in two of the following three areas not chosen as the major area of concentration.

A. History
B. Language, Literature, and Art History (Departments of Spanish & Portuguese and History of Art and Architecture)
C. Social Sciences (Departments of Anthropology, Economics, Political Science, Sociology)

IV. *Area of Concentration* (12 credit hours from one of the following areas; special topics and independent study courses must be approved for sufficient LAS content by major adviser):

A. History.

HISTORY: 1353, Atlantic History in the Digital Age; 1370, Colonial Latin America; 1378, Social Movements in Latin America, 1780–1912; 1379W, The Inquisition in the New World; 1380, Modern Latin America; 1383, Slave Resistance in the Americas; 1384, Law, Gender, and Slave Emancipation in Latin America; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2457, Drug Trafficking and Society in Latin America; 2470, Modern Mexico; 2480, Central America; 2490, Brazilian Civilization; 2510, Reform and Revolution in Latin America; 2530, African Religions in the Americas; 2535, Latin America and the United States; 2540, Race and

Nation in Latin America; 2570, Caribbean History, 1492–1983; 3100, Pirates of the Caribbean; 3280, Popular Cultures in Modern Latin America; 3850, Independent Study; 3890, Selected Topics in History.

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future.

B. Language, Literature, History of Art.

AFRICAN AMERICAN AND DIASPORA STUDIES: 1706, Capoeira: Afro-Brazilian Race, Culture, and Expression; 2148, Blacks in Latin America and the Caribbean; 2356, African Spirits in Exile: Diaspora Religions in the Americas; 3248, Atlantic African Slave Trade.

CREOLE: 1101, Elementary Creole I; 1102, Elementary Creole II; 2201, Intermediate Creole I; 2202, Intermediate Creole II.

HISTORY OF ART AND ARCHITECTURE: 3718W, Twentieth-Century Mexican Art: Painting, Cinema, Literature; 3850, Independent Research; 4960, Advanced Seminar.

K'ICHE': 1101, Elementary K'iche' I; 1102, Elementary K'iche' II; 2201, Intermediate K'iche' I; 2202, Intermediate K'iche' II.

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future; 2301, Music of Protest and Social Change in Latin America; 4550, Gender, Sexuality, and Family in Latin America.

PORTUGUESE: 1103, Intensive Elementary Portuguese; 2203, Intermediate Portuguese; 3301, Portuguese Composition and Conversation; 3302, Brazilian Pop Culture; 3303, Introduction to Luso-Brazilian Literature; 3850, Independent Study; 3892, Special Topics in Portuguese Language, Literature, or Civilization; 4350, Brazilian Culture through Native Material; 4420, Brazilian Literature through the Nineteenth Century; 4425, Modern Brazilian Literature.

SPANISH: 2201, Intermediate Spanish; 2203, Intermediate Spanish; 2204, Intensive Intermediate Spanish; 2995, Contemporary Latin American Prose Fiction in English Translation; 3301W, Intermediate Spanish Writing; 3302, Spanish For Oral Communication Through Cultural Topics; 3303, Introduction to Spanish and Spanish American Literature; 3320, Introduction to Hispanic Cultural Studies; 3330, Cultural Studies in the Andes; 3340, Advanced Conversation; 3345, Spanish for Business and Economics; 3350, Spanish for the Legal Profession; 3355, Advanced Conversation through Cultural Issues in Film; 3360, Spanish Civilization; 3375, Film and Culture in Latin America; 3830, Spanish for the Medical Profession; 3835, Latino Immigration Experience; 3850, Independent Study; 3891, Special Topics in Hispanic Culture; 3892, Special Topics in Spanish Language and Linguistics; 3893, Special Topics in Hispanic Literature; 4310, Translation and Interpretation; 4325, Dialectology; 4340, History of the Spanish Language; 4400, The Origins of Spanish Literature; 4405, Literature of the Spanish Golden Age; 4415, Spanish Literature from 1900 to the Present; 4420, Spanish American Literature from the Conquest to 1900; 4425, Spanish American Literature from 1900 to the Present; 4440, Development of the Short Story; 4445, Development of the Novel; 4450, The Contemporary Novel; 4455, Development of Drama; 4465, The Theory and Practice of Drama; 4470, Development of Lyric Poetry; 4550, The Theory and Practice of Literary Translation; 4620, Love and Honor in Medieval and Golden Age Literature; 4640, *Don Quixote*; 4720, Literary Genres and National Identities in Latin America; 4725, Jungle Narratives in Latin America; 4730, Modern Latin American Poetry; 4741, Spanish-American Literature of the Post-Boom Era; 4750, Afro-Hispanic Literature; 4755, Latina and Latin American Women Writers; 4760, Literature and Medicine; 4810, Images of the City.

C. Social and Natural

ANTHROPOLOGY: 2105, Race in the Americas; 2106, Culture and Power in Latin America; 2108, Indigenous Peoples of Lowland South America; 2110, Gender and Cultural Politics; 2113, Food, Identity, and Culture; 2227, Food in the Ancient World; 2230, South America Archaeology; 2231, Ancient Andean Civilizations; 2242, The Archaeology of Ancient Maya Civilization; 2603, Comparative Writing Systems; 3121, Global Wealth and Poverty; 3122, The Anthropology of Globalization; 3130, Andean Culture and Society; 3133, Political Anthropology; 3134, Human Rights of Indigenous Peoples; 3140, Myth, Ritual, Belief: The Anthropology of Religion; 3141, Anthropology of Healing; 3143, Medical Anthropology; 3161, Colonial Encounters in the Americas; 3200, Ancient Cities; 3202, The Collapse of Civilizations; 3240, Ancient Mesoamerican Civilizations; 3241, The Aztecs; 3242, The Archaeology of the Ancient Maya Civilization; 3243, Classic Maya Religion and Politics; 3250, The Inca Empire; 3850– 3851, Independent Research; 3622W, Classic Maya Language and Hieroglyphs; 3867, Digital Archaeology: Analysis and Curation of Material Culture; 3890, Special Topics; 4156, Racial Experience and Politics; 4373, Health and Disease in Ancient Populations.

ECONOMICS: 2220, Latin American Development; 3600, International Trade; 3650, Development Economics; 3851–3852, Independent Study in Economics; 4520W, Seminar on Globalization.

Note: Students who successfully complete an Economics course on this list numbered 4520W or higher may also receive Area of Concentration credit for successfully completing either Economics 3010 or 3020.

MEDICINE, HEALTH, AND SOCIETY: 2410, HIV/AIDS in the Global Community; 2420, Economic Demography and Global Health; 2610, Global Health Crises; 3210, Health, Development, and Culture in Guatemala; 3212, Health, Development, and Culture in Guatemala; 3890, Social Medicine in Latin America.

POLITICAL SCIENCE: 2213, Democratization and Political Development; 2219, Politics of Mexico; 2225, International Political Economy; 2236, The Politics of Global Inequality; 2251, The Politics of U.S. and Global Immigration; 3217, Latin American Politics; 3218, Public Opinion and Democracy in Latin America; 3219, La política de América Latina; 3228, International Politics of Latin America; 3897, Selected Topics; 3851–3852, Independent Research.

SOCIOLOGY: 3232, Contemporary Mexican Society; 3321, Population and Society; 3322, Immigration in America; 3851, Independent Research and Writing.

V. *Electives* (6 credit hours). Any two classes listed above (or others approved by the major adviser).

Honors Program

An honors program is available, acceptance into which must be approved by the director of undergraduate studies. Students must have a minimum 3.3 cumulative GPA and a 3.3 GPA in courses that count toward the Latin American studies major to be accepted into the program. The Honors Program requires: completion of 6 credit hours in LAS 3851 and 3852; the writing of an honors thesis; and passing an oral honors examination. Interested students should consult their academic adviser during their junior year.

Minor in Latin American Studies

Students must complete 15 credit hours of approved courses with Latin American content, including Latin American Studies 2101. In addition, students must demonstrate intermediate knowledge of one Latin American language by successfully completing Spanish 2203, Portuguese 2203, Haitian Creole 2202 or K’iche’ 2202. Courses taken to satisfy the language requirement may not be counted toward the 15 credit hours of core courses. Individual standardized testing may also be used to demonstrate knowledge.

Course selection must be approved by the undergraduate adviser of the Program in Latin American Studies.

Minor in Brazilian Studies

The Program in Latin American Studies also offers a minor in Brazilian studies. Students must complete 15 credit hours of approved courses with Brazilian content including LAS 2102 and Portuguese 2203. In addition, students must complete three additional courses from the Areas of Study listed below: one course in Area I, one course in Area II, and one course in Area III. Proficiency at the level of intermediate Portuguese can be demonstrated through testing. If this option is exercised, students must take 3 credit hours of course work approved by the director of undergraduate studies in lieu of the 3 credit hours of PORT 2203.

Course selection must be approved by the director of undergraduate studies for Latin American Studies. Other elective courses, including special topics courses, may be counted toward the minor with the approval of the director of undergraduate studies.

Requirements for completion of the minor include at least 15 credit hours as follows:

1. 3 credit hours of LAS 2102: Brazil: Past, Present, and Future
2. 3 credit hours of PORT 2203: Intermediate Portuguese (PORT 1103 is a prerequisite)
3. 3 credit hours from Area I: Portuguese Language and Literature
4. 3 credit hours from Area II: Brazilian Society, History, and Cultures
5. 3 credit hours from Area III: Brazil in Regional and Global Context

Areas of Study

Area of Study I: Portuguese Language and Literature

PORTUGUESE: 3301, Portuguese Composition and Conversation; 3303, Introduction to Luso-Brazilian Literature; 4420, Brazilian Literature through the Nineteenth Century; 4425, Modern Brazilian Literature.

Area of Study II: Brazilian Society, History, and Cultures

ANTHROPOLOGY: 2108, Indigenous Peoples of Lowland South America.

HISTORY: 2490, Brazilian Civilization.

PORTUGUESE: 3302, Brazilian Pop Culture; 4350, Brazilian Culture through Native Material; 3891, Special Topics in Portuguese and Brazilian Literature or Civilization in English Translation.

Area of Study III: Brazil in Regional and Global Context

AFRICAN AMERICAN AND DIASPORA STUDIES: 2148, Blacks in Latin America and the Caribbean; 3248, Atlantic African Slave Trade; 1706, Capoeira: Afro-Brazilian Race, Culture, and Expression.

ANTHROPOLOGY: 2106, Culture and Power in Latin America.

ECONOMICS: 2220, Latin American Development.

HISTORY: 1370, Colonial Latin America; 1380, Modern Latin America; 1383, Slave Resistance in the Americas; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2510, Reform and Revolution in Latin America; 2540, Race and Nation in Latin America.

POLITICAL SCIENCE: 3217, Latin American Politics; 3228, International Politics of Latin America.

SOCIOLOGY: 3231, Contemporary Latin America.

Latino and Latina Studies

DIRECTOR Celso T. Castilho

ASSISTANT DIRECTOR Gretchen Selcke

COURSES OFFERED: LATS

Latino and Latina Studies focuses on cultural production and political and socioeconomic experiences of people inculcated with the US experience, self-identifying as Latinx and communicating primarily in English and sometimes in Spanish. The LATS major and minor will examine this enduring and dynamic population that crosses and re-crosses borders constructed by geography, linguistics, class, race, and gender. This program of study is designed to accommodate a range of voices and multiple manifestations of Latinx identity and cultural expression in historical and contemporary contexts to fill in this vital but often overlooked component of our national identity and discourse.

Students pursuing a LATS major or minor are expected to obtain language competence in Spanish before completing the program, though they do not need to meet this requirement when declaring the major or minor. Students may satisfy this requirement by completing SPAN 3303, or any other course with a higher number taught in Spanish.

Program of Concentration in Latino and Latina Studies

The interdisciplinary major in Latino and Latina studies consists of thirty-six (36) credit hours. The specific requirements are as follows:

1. LATS 2201, Introduction to Latino and Latina Studies (3 credit hours)

2. SPAN 3303, Introduction to Spanish and Spanish American Literature (3 credit hours)

SPAN 3303 requires up to 19 prerequisite credit hours of Spanish language instruction through SPAN 3302, depending on departmental placement.

3. ENGL 3658, Latino-American Literature (3 credit hours)

4. LATS 4961, Latino and Latina Studies Capstone, which is usually taken in the senior year (3 credit hours)

5. Eight elective courses (24 credit hours) with at least two courses from Group A (Latino and Latina Culture) and two courses from Group B (Historical Context), that have not already been applied to satisfy above requirements.

Minor in Latino and Latina Studies

Students pursuing the interdisciplinary minor must complete eighteen (18) credit hours. The specific requirements areas follows:

1. LATS 2201, Introduction to Latino and Latina Studies (3 credit hours)

2. SPAN 3303 or ENGL 3658 (3 credit hours)

If both courses are taken, only one may be applied as elective credit.

3. LATS 4961, Latino and Latina Studies Capstone (3 credit hours)

4. Three other courses (9 credit hours), with at least one course from Group A (Latino and Latina Culture) and one course from Group B (Historical Context), that have not already been applied to satisfy above requirements.

Approved List of Courses

Category A: Latino and Latina Culture

AFRICAN AMERICAN AND DIASPORA STUDIES: 1706, Capoeira: Afro-Brazilian Race, Culture, and Expression; 2148, Blacks in Latin America and the Caribbean.

ENGLISH: 1111-19 FYWS, Growing Up Latino and Latina; 1210-08 Prose Fiction, “Estamos Aquí:” Belonging in Contemporary Latinx Fiction; 1220-01 Drama, Forms and Techniques: Latinx Plays and Performance; 3658, Latino-American Literature.

HISTORY: 2725, Race, Power, and Modernity; 2540, Race and Nation in Latin America; 3280, Popular Cultures in Modern Latin America.

HUMAN AND ORGANIZATIONAL DEVELOPMENT: 3221, Health Service Delivery to Diverse Populations.

LATINO AND LATINA STUDIES: 3831, Latino and Latina Business and Entrepreneurship; 3880 and 3881, Latino and Latina Studies Internship Training and Internship Readings and Research; 3850, Independent Study.

LATIN AMERICAN STUIDES: 2601, Latin America, Latinos, and the United States.

SOCIOLOGY: 3702, Racial and Ethnic Minorities in the United States; 3322, Immigration in America.

SPANISH: 2995, Contemporary Latin American Prose Fiction in English Translation; 3302, Spanish for Oral Communication Through Cultural Topics;3303, Introduction to Spanish and Spanish American Literature; 3345, Spanish for Business and Economics; 3375, Film and Culture in Latin America;3830, Spanish for the Medical Profession; 3835, Latino Immigration Experience; 3893-01, Special Topics in Hispanic Literature—Latinx US Literature;3893-02, Special Topics im Hispanic Literature—Contemporary Mexican Literature and Culture; 4350, Communicating Across Cultures; 4450, TheContemporary Novel; 4720, Literary Genres and National Identities in Latin America; 4725, Jungle Narratives in Latin America; 4730, Modern Latin American Poetry; 4750, Afro-Hispanic Literature; 4755, Latina and Latin American Women Writers; 4765, Latina American Fiestas: Mexico, TheAndes, and the Caribbean; 4810, Images of the City.

Category B: Historical Context

AFRICAN AMERICAN AND DIASPORA STUDIES: 2356, African Spirits in Exile: Diaspora Religions in the Americas; 3248, Atlantic African Slave Trade; 3178, Colonialism and After.

ANTHROPOLOGY: 1111 FYWS, Conquest of Mexico; 2106, Culture and Power in Latin America; 2108, Indigenous Peoples of Lowland South America; 2214, Art and Architecture in the Ancient Americas; 2220/2220W, Human Landscapes; 2230, South American Archaeology; 2231, Ancient Andean Civilizations; 2242/2242W The Archaeology of the Ancient Maya Civilization; 2160/2160, Creating Community; 2371, Reading the Bones: Bioarchaeology and Forensic Studies in the Peruvian Andes; 3130, Andean Culture and Society; 3161, Colonial Encounters in the Americas; 3162, Material Culture of New World Slavery, 3202, The Collapse of Civilizations;

3240, Ancient Mesoamerican Civilizations; 3241, The Aztecs; 3243/3243W, Ancient Maya Gods and Rulers; 3250, The Inca Empire; 3622/3622W, Classic Maya Language and Hieroglyphs.

ENGLISH: 3654, African American Literature; 3674, Caribbean Literature.

HISTORY: 1111 FYWS, Destruction of the Indies; 1370, Colonial Latin America; 1378, Social Movements in Latin America; 1379W, The Inquisition in the New World: Law, Deviance, and Heresy in Colonial Mexico; 1380, Modern Latin America; 1383, Slave Resistance in the Americas; 1385W, Disease and Disorder in the Atlantic World; 2450, Reform, Crisis, and Independence in Latin America, 1700–1820; 2457, Drug Trafficking and Society in Latin America; 2470, Revolutionary Mexico; 2480, Central America; 2490, Brazilian Civilization; 2510, Reform and Revolution in Latin America; 2530, African Religions in the Americas; 2535, Latin America and the United States; 2542, Cuba and the United States; 2544, Panama: Global Crossroads; 2570, Caribbean History, 1492–1983; 2570, Immigration, the United States, and the World; 2580, American Indian History before 1850; 2590, American Indian History since 1850; 2845, Race, Gender, and Slave Emancipation.

LATIN AMERICAN STUDIES: 2101, Introduction to Latin America; 2301, Music of Protest and Social Change in Latin America; 3891, Special Topics in Latin American Studies; 4550, Gender, Sexuality, and Family in Latin America.

MUSIC LITERATURE: 2110, Music in Latin America and the Caribbean.

PORTUGUESE: 2900, Brazilian Civilization through English Language Material.

SOCIOLOGY: 3231, Contemporary Latin America; 3602, Change and Social Movements in the Sixties.

SPANISH: 3320, Introduction to Hispanic Cultural Studies; 3330, Cultural Studies in the Andes; 3365, Film and Recent Cultural Trends in Spain;3892, Special Topics in Spanish Language and Linguistics; 4450, The Contemporary Novel; 4465, The Theory and Practice of Drama; 4740, Spanish-American Literature of the Boom Era; 4741, Spanish-American Literature of the Post-Boom Era; 4760, Literature and Medicine.

Category C: Critical Perspectives
AFRICAN AMERICAN AND DIASPORA STUDIES: 1010, Introduction to African American and Diaspora Studies.

ANTHROPOLOGY: 2105, Race in the Americas; 3134, Human Rights of Indigenous Peoples.

ECONOMICS: 2100, Labor Economics; 2220 Latin American Development.

ENGLISH: 3742, Feminist Theory.

PHILOSOPHY: 3617, Philosophy of Language.

POLITICAL SCIENCE: 2208, Law, Politics, and Justice; 2219, Politics of Mexico; 2251, The Politics of U.S. and Global Immigration; 3217, Latin American Politics; 3228, International Politics of Latin America; 3264W, Global Feminisms.

SOCIOLOGY: 3312, Environment and Development; 3232, Contemporary Mexican Society; 3314, Environmental Inequality and Justice; 3612, Class, Status, and Power; 3701, Racial Domination, Racial Progress; 3704, Race, Gender, and Sport.

WOMEN'S AND GENDER STUDIES: 1150/1150W, Sex and Gender in Everyday Life; 3201, Women and Gender in Transnational Context.

Licensure for Teaching (Peabody)

Peabody offers programs leading to teacher licensure in the following areas: elementary (grades K–5), and secondary education (grades 6–12) with endorsement in English, math, biology, chemistry, physics, earth science, history, and political science. (Added endorsements are available also in economics, psychology, and sociology for those who will have a history endorsement.) An added endorsement program also is available in English as a Second Language (grades PreK–12). All of these programs are offered by the Department of Teaching and Learning.

Special education–interventionist (LD/BD for grades K–8 or 6–12) or comprehensive (multiple/severe for grades K–12) are offered by the Department of Special Education.

Vanderbilt's Blair School of Music and Peabody College offer a program for students interested in teacher licensure with endorsement in the following: *(1) instrumental/general music (grades K–12), or (2) vocal/general music (grades K–12).* Blair students complete the first part of the program as part of the bachelor of music degree and apply during the senior year to continue into the master of education degree for a final year of professional education.

Students seeking licensure may enroll in Peabody College, the College of Arts and Science, or the Blair School of Music. In all cases, most of the liberal arts course work is taken in the College of Arts and Science, and the professional education course work is taken at Peabody College.

All students completing a teacher education program at Vanderbilt are strongly advised to apply for a license in Tennessee whether or not they plan to teach in this state. In addition, licensure is available by application in other states. The student is responsible for applying for Tennessee licensure through the Office of Teacher Licensure. Each state has its own application forms and procedures for licensure; information is available on the Office of Teacher Licensure website: peabody.vanderbilt.edu/teacher-licensure/.

Licensure requirements continue to undergo revision. Students must meet licensure requirements in effect at the time of their program completion, which may be different from requirements in effect at the time they entered the program. Each year, teacher education students should consult the current Vanderbilt *Undergraduate Catalog* or the Peabody *Undergraduate Handbook*. The website peabody.vanderbilt.edu/teacher-licensure/ provides additional information.

Security Clearance

As part of the Peabody background check process you are required to pass a fingerprint criminal background check by the beginning of your first semester. Visit https://peabody.vanderbilt.edu/criminal-background-clearance for detailed information.

Degree Audits

Electronic degree audits enable students and faculty advisers to track each student's progress in the degree program at Peabody. The departmental handbooks describe access to and use of online Peabody major degree audits to view program requirements recognized as "met" or "unmet" at any time in the student's program. The degree audit also denotes permissions for waivers or course substitutions. Degree audits are managed in the Peabody Office of Academic Services.

SCREENING

Students seeking teacher licensure must be approved by each department through which licensure is sought. Secondary licensure candidates should contact an adviser or the director of undergraduate studies in the appropriate Arts and Science department(s) to be informed of any specific departmental requirements or standards. There are two points in each teacher education program when undergraduates must complete applications for screenings by departmental faculty. Screening requirements continue to undergo revision and are subject to change. Students must meet screening requirements in effect at the time of their application, which may be different from requirements stated below. Screening reviews, described below, are important checkpoints that allow successful students to advance in the program. Attainment of 2.75 (4.0) cumulative grade point average and completion of required courses do not automatically qualify a student for continuation in the program.

Faculty evaluation of a student's qualifications for continuation in a teacher education program include academic, performance, and disposition factors such as the following:

1. Dependability (as evidenced by good attendance in classes and practica and the completion of required assignments and procedures on time)
2. Professional and ethical behavior (honesty, acceptance of responsibility, emotional maturity, etc.)
3. Attitude and interpersonal skills (including the ability to work with children and with peers)
4. Academic competence (It is possible for a student to meet minimum grade point requirements and pass all courses and still have specific academic weaknesses which might cause denial of screening applications)
5. Teaching competence (as evidenced by successful completion of practica requirements). It is possible for a student to meet minimum grade point requirements and pass all courses and still have specific performance weaknesses which might cause denial of screening applications.

These criteria rest on the professional judgment of faculty members. Whether a student meets them or not is determined by a vote of appropriate faculty. Undergraduate students seeking secondary education licensure must be approved by the Department of Teaching and Learning faculty and also by the faculty of College of Arts and Science department(s) for the Arts and Science major(s).

Screening deadlines are October 1 and February 1. Undergraduates must apply for Screening I during spring of the sophomore year or fall of the junior year. Screening II must be done in the fall of the senior year, restricting undergraduate student teaching to the spring of the senior year. Deadlines are firm; late applications will not be accepted. The Screening I and II application should be submitted online no later than the deadline. (NOTE: Screening II applications require additional documents when submitted. See specific requirements with the application.)

Students will be notified of results of the faculty vote at the end of the screening semester. In instances where there is a negative decision, the student wishing to appeal must do so in writing to the chairperson(s) of the department(s) denying the application. If the initial decision is upheld and the student wishes to continue the appeal, a written petition should be filed with the Administrative Committee of Peabody College.

Screening I (Formal Admission to an Undergraduate Teacher Education Program)

Each student seeking teacher licensure must be formally admitted to the teacher education program(s) by completing an online application for Screening I review by the faculty of the department(s) in which endorsement(s) is/are sought. Candidates normally apply for Screening I during spring of the sophomore year or

fall of the junior year, depending on their program area (candidates should consult their department handbook for timelines in their program area). Deadlines are February 1 in the spring and October 1 in the fall. Students who transfer more than 60 hours to Vanderbilt from another institution must apply for admission to the teacher education program by the screening deadline of their second semester at Vanderbilt.

An initial screening review by the faculty will occur soon after the Screening I deadline. If there are concerns noted, the student will be counseled. The final faculty review and decision will be done toward the end of the semester.

Criteria for Screening I (formal admission to teacher education) are:

A. Specific Academic Criteria
    1. Test scores (SAT composite score of 780 or ACT 21, OR passing scores on the Praxis I Core Academic Skills for Educators) or university credit in reading, writing, and mathematics courses.
    2. Minimum cumulative grade point average of 2.75 (4-point scale)
    3. Successful completion of at least two of the required professional education courses as defined by the program area with a minimum grade of *C+*
    4. Department interview
B. Specific Faculty Evaluative Criteria: The faculty will consider the disposition criteria of dependability, professional and ethical behavior, attitude and interpersonal skills, and teaching competence as itemized at the beginning of the Screening section.

Screening II (Admission to Student Teaching)

Admission to Student Teaching is not automatic when prerequisite course work and field experiences have been completed. All students must submit the online Screening II application by October 1 in the fall of the senior year. At the time of screening application, the student should be enrolled in any remaining prerequisite courses. **No course work may be taken during the semester of student teaching and seminar.**

After an initial review in the Office of Teacher Licensure, the Screening II application and other submitted materials will be considered by departmental faculty according to the following criteria for Screening II approval to student teach:

A. Specific Academic Criteria
    1. Formal admission to a teacher education program granted (completion of Screening I)
    2. First semester senior standing (for student teaching in the spring of the senior year)
    3. Successful completion (*C+* or above) of all courses required and prerequisite to student teaching as defined by the program area
    4. Minimum cumulative grade point average of 2.75 (4.0 scale)
    5. Satisfactory performance (*C+* or above) in course work in areas in which teacher licensure is sought
    6. Successful completion of Standard First Aid and CPR training (attach certificate copies to the Screening II application)
B. Specific Faculty Evaluative Criteria: The faculty will consider the disposition criteria of dependability, professional and ethical behavior, attitude and interpersonal skills, and teaching competence as itemized at the beginning of the Screening section.

Each Screening II application requires additional documents, depending on the program. A copy of first aid and CPR verification of training completed within the previous two years must be submitted to the Office of Teacher Licensure by the October 1 deadline. In addition, some programs have additional requirements that are prerequisite to Screening II application. Students should consult departmental handbooks. Screening II applicants who are approved to student teach will receive notification of their student teaching placements no later than during the Student Teacher Orientation at the beginning of the student teaching semester.

Students who have passed Screening II are assigned two specific student teaching placements in the Nashville area.

Student Teaching

Vanderbilt students seeking teacher licensure must successfully complete a 15-week semester of full-time

student teaching in two different grade levels in Nashville area public schools and must be recommended for licensure by the supervisors of student teaching and departmental faculty. Student teaching may be done only in the spring semester. Prior to the start of student teaching, all prerequisite courses must have been completed, the cumulative GPA must be at least 2.75, and the appropriate departmental faculties must have voted to approve the candidate for student teaching during the previous semester as part of the Screening II application process. The Tennessee State Department of Education and Metropolitan Nashville Public Schools prohibit student teachers from taking courses during student teaching. See the departmental *Undergraduate Handbook* for details.

Application for Teacher Licensure and University Recommendation for Licensure

All students completing the teacher education program at Vanderbilt are strongly advised to apply for a license in Tennessee whether or not they plan to teach in this state. In addition, licensure is available in most other states. The student is responsible for applying for Tennessee licensure through the Office of Teacher Licensure. Each state has its own application forms and procedures for licensure; information is available on the Office of Teacher Licensure website.

To be licensed through Vanderbilt's teacher education program, a graduate must earn a positive licensure recommendation from the university. The university's decision to recommend a candidate is based upon the following:

1. Maintaining the grade point average required for admission to the teacher education program (2.75 on a 4.0 scale).
2. For Tennessee licensure, achieving the state minimum score on all required parts of the PRAXIS II Series and edTPA (scores must be sent to the Vanderbilt Office of Teacher Licensure–code R 1871, and the Tennessee Department of Education–code R 8190).*
3. Receiving a positive recommendation from the student's department as a result of the student teaching experience (Pass in student teaching does not guarantee a favorable recommendation).

*Testing requirements are changing almost annually; check instructions in the Office of Teacher Licensure or at ets.org/praxis/ before registering to take the exam.

Accreditation

Vanderbilt University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award bachelor's, master's, professional, and doctoral degrees. Questions about the accreditation of Vanderbilt University may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website (www.sacscoc.org).

Vanderbilt is accredited by the Council for the Accreditation of Education Preparation (CAEP) and its licensure programs also are approved by the Tennessee Department of Education and the following specialty professional associations:

National Council for Teachers of English (NCTE)

Council for Exceptional Children (CEC)

Council for Accreditation of Counseling and Related Educational Programs (CACREP)

Association for Childhood Education International (ACEI)

American Speech-Language-Hearing Association (ASHA)

National Council for the Social Studies (NCSS)

National Council for Teachers of Mathematics (NCTM)

National Science Teachers Association (NSTA)

Accreditation Council for Education in Nutrition and Dietetics (ACEND)

Materials Science and Engineering

DIRECTOR OF UNDERGRADUATE STUDIES Bridget R. Rogers

DIRECTOR OF GRADUATE STUDIES Joshua D. Caldwell

Affiliated Faculty

PROFESSORS Joshua D. Caldwell (Mechanical Engineering) David E. Cliffel (Chemistry), Craig L. Duvall (Biomedical Engineering), Philippe M. Fauchet (Electrical and Computer Engineering), Daniel M. Fleetwood (Electrical and Computer Engineering), Todd D. Giorgio (Biomedical Engineering), Scott A. Guelcher (Chemical and Biomolecular Engineering), Richard F. Haglund, Jr. (Physics), G. Kane Jennings (Chemical and Biomolecular Engineering), Weng P. Kang (Electrical and Computer Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), Deyu Li (Mechanical Engineering), Sandra J. Rosenthal (Chemistry), Florence Sanchez (Civil Engineering), Jason D. Valentine (Mechanical Engineering), Sharon M. Weiss (Electrical and Computer Engineering)

ASSOCIATE PROFESSORS Leon Bellan (Mechanical Engineering), Janet E. MacDonald (Chemistry), Bridget R. Rogers (Chemical and Biomolecular Engineering), Greg Walker (Mechanical Engineering)

RESEARCH ASSOCIATE PROFESSOR Enxia Zhang (Electrical and Computer Engineering)

ASSISTANT PROFESSORS Piran Kidambi (Chemical and Biomolecular Engineering), Carlos Silvera Batista (Chemical and Biomolecular Engineering)

COURSES OFFERED: MSE

Materials have been key to the solutions to many societal problems. Many of the barriers to widespread incorporation of alternate and renewable energy, from higher-capacity, more robust, less expensive batteries for energy storage, to high efficiency/low cost solar devices, involve the need for new materials. Materials will play an ever-increasing role in health care. New medical devices, drug delivery systems, and synthetic biological tissue are just a few of the health-related applications in need of new materials for their success. In addition, materials challenges are front and center in the ever-evolving areas of electronic devices. Engineers and scientists with knowledge of materials science and engineering concepts are needed to address these and many more materials challenges.

Materials science and engineering is an interdisciplinary program with affiliated faculty from all engineering disciplines, as well as faculty from chemistry, and physics. Two undergraduate options involving materials science and engineering are available. Students pursuing a B.S. in engineering science may choose a program concentration in materials science and engineering. This option requires the student to take MSE 1500, 1500L, and 2500, and other materials science and engineering elective courses to complete their 24 hours of engineering program electives. Students pursuing a B.E. in an engineering discipline can earn a minor in materials science and engineering.

Materials Science and Engineering Minor

The minor in materials science and engineering provides the student with an understanding of engineering materials. It complements and adds to the student’s major in one of the engineering disciplines, exposing the student to an interdisciplinary approach to problem solving. The minor program in materials science and engineering requires 16 hours of program courses, of which 7 hours are devoted to MSE 1500, 1500L and MSE 2500. No more than 10 hours below the 2500 level may be applied to the minor.

Program Requirements

MSE 1500, 1500L	Materials Science I and Laboratory
MSE 2500	Materials Science II

The remaining 9 hours can be chosen from the following list of courses. Please contact the MSE Director of Undergraduate Studies with requests to accept courses not on this list for elective credit.

MSE 3860	Undergraduate Research
MSE 3889-3890	Special Topics
BME 2100	Biomechanics
BME 3500	Biomedical Materials: Structure, Property, and Applications
BME 4200	Principles and Applications BioMicroElectro Mechanical Systems (BioMEMS)
BME 4500	Nanobiotechnology
CHBE 4840	Synthesis and Applications of 2D Nanomaterials
CHBE 4850	Semiconductor Materials Processing
CHBE 4860	Molecular Aspects of Chemical Engineering
CHBE 4870	Polymer Science and Engineering
CHBE 4880	Corrosion Science and Engineering
CE 2205	Mechanics of Materials
CE 3205	Structural Design
CE 4200	Advanced Structural Steel Design
CE 4210	Advanced Reinforced Concrete Design
CE 4211	Mechanics of Composite Materials
ECE 4283	Principles and Models of Semiconductor Devices
ECE 4284	Integrated Circuit Technology and Fabrication
ME 3202	Machine Analysis and Design
ME 4251	Modern Manufacturing Processes
ME 4275	Finite Element Analysis
CHEM 3010	Inorganic Chemistry
CHEM 3300	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 3630	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
PHYS 2250W	Introduction to Quantum Physics and Applications I
PHYS 2290	Electricity, Magnetism, and Electrodynamics
PHYS 3640	Physics of Condensed Matter

Mathematics

INTERIM HEAD David Wright

VICE CHAIR Mark Ellingham

DIRECTOR OF UNDERGRADUATE STUDIES John Rafter

DIRECTOR OF GRADUATE STUDIES Alexander Powell

PROFESSORS EMERITI John Ahner, Philip S. Crooke, Emmanuele DiBenedetto, Richard R. Goldberg, Matthew Gould, Robert L. Hemminger, C. Bruce Hughes, Ettore F. Infante, Gennadi Kasparov, Richard J. Larsen, Ralph N. McKenzie, Michael D. Plummer, John G. Ratcliffe, Eric Schechter, Daoxing Xia

PROFESSORS, Akram Aldroubi, Dietmar Bisch, , Paul H. Edelman, Mark N. Ellingham, Douglas P. Hardin, , Michael L. Mihalik, Mike Neamtu, Alexander Olshanskiy, Denis Osin, Alexander Powell, , Edward B. Saff, Mark V. Sapir, Larry L. Schumaker, Gieri Simonett, Constantine Tsinakis, Glenn F. Webb, Dechao Zheng

RESEARCH PROFESSORS Philip S. Crooke, Emmanuele DiBenedetto, Ralph N. McKenzie Stephen G. Simpson

ASSOCIATE PROFESSORS Jesse Peterson, Jared Speck, Ioana Suvaina, Steven T. Tschantz

RESEARCH ASSOCIATE PROFESSOR Rares Rasdeaconu

ASSISTANT PROFESSORS Anna Marie Bohmann, , Marcelo Disconzi, Spencer Dowdall, , William Holmes, Larry Rolen

PRINCIPAL SENIOR LECTURERS Derek Bruff, B Linda Hutchison, John Rafter, Lori Rafter Jakayla Robbins

SENIOR LECTURER EMERITA Jo Ann W. Staples

SENIOR LECTURERS Henry Chan, José Gil-Férez, Blane Hollingsworth, Alice Mark

POSTDOCTORAL SCHOLARS Leonardo Abbrescia, Simon André, Dylan Domel-White, Hengrong Du, Mitchell Faulk, Kevin Grace, James Hateley, Jocelyne Ishak, Alexander Margolis, ,Rocío Díaz Martín, Ivan Medri, Ian Runnels, Sam Shepherd, Oleksandr Vlasiuk, Ian Wagner, Yi Wang, Xinyue Zhao

COURSES OFFERED: MATH

The Department of Mathematics offers an undergraduate major with a high degree of flexibility. A solid background in mathematics provides an excellent foundation for any quantitative discipline as well as many professions—many students go on to professional studies in law, medicine, or business.

Program of Concentration in Mathematics

Three tracks are available.

Program I (Standard Track) is intended for most mathematics majors in the College of Arts and Science, Blair School of Music, and Peabody College.

Program II (Applied Track) is intended for students in the School of Engineering who elect a second major in mathematics but is also available for other students.

Program III (Honors Track) is intended for highly qualified students who either are preparing for graduate studies in mathematics or plan to graduate with departmental honors. Students who complete this program and, in addition, complete a senior thesis will graduate with departmental honors.

Requirements for the three tracks are summarized below.

Program I (Standard Track)

At least 32 credit hours in mathematics including at least 15 credit hours taken at Vanderbilt, as follows.

1. A calculus sequence: 1300–1301-2300, 1300-1301-2310, or 1300–1301–2500–2501.
2. Linear algebra and differential equations: 2600 or 2500–2501, and 2610.
3. At least 15 additional credit hours from 2800 or above.
4. The remainder of the credit hours must be chosen from 2800 or above.

Program II (Applied Track)

At least 29 credit hours in mathematics including at least 15 credit hours taken at Vanderbilt and 6 credit hours outside the department, as follows.

1. A calculus sequence as in Program I.
2. Linear algebra and differential equations—one of the following:
    a. one of 2410, 2600, or 2500–2501, and one of 2420 or 2610; or
    b. 2400 and either 2600 or 2500–2501.
3. At least 12 additional credit hours from 2800 or above, excluding 3000.
4. The remainder of the credit hours in mathematics must be chosen from 2800 or above.

5. At least 6 credit hours of advanced, mathematically based science or engineering courses approved by the director of undergraduate studies. This requirement is automatically fulfilled by students who complete a physics major or a major in the School of Engineering.

Program III (Honors Track)

At least 38 credit hours in mathematics including at least 15 credit hours taken at Vanderbilt, as follows.

1. A calculus sequence as in Program I.
2. Linear algebra and differential equations as in Program I.
3. At least 21 additional credit hours of advanced course work,
    a. including four courses taken from the following three categories, at least one from each category:
        1. Algebra: 3300, 4300, 4301.
        2. Analysis: 3100, 3110, 6100, 6101.
        3. Topology and Geometry: 3200, 3230, 4200, 4201, 4220, 6210.
        4. The remainder of the 21 credit hours must be chosen from 2800 or above, excluding 4999.
4. The remainder of the credit hours must be chosen from 2800 or above.

Students who complete Program III and, in addition, fulfill the Honors requirements listed below, will graduate with departmental honors.

Students planning to teach in secondary school should contact the director of secondary education programs in the Department of Teaching and Learning at Peabody College for course recommendations.

Honors Program

The Honors Program in Mathematics is designed to afford superior students the opportunity to pursue more intensive work within their major field. The program requires:

1. Completion of all the requirements of Program III (Honors Track).
2. Graduate with a minimum grade point average of 3.6 in courses that count toward the mathematics
3. Completion of a senior thesis, typically in the second semester of the senior year. With approval of the director of undergraduate studies, the thesis may be based on research initiated or completed at another academic institution, such as during a summer REU
4. Oral examination on the senior thesis. A committee of at least three faculty members—at least two from the Department of Mathematics, one being the thesis adviser—shall evaluate the thesis and the oral examination. Exceptional achievement on the thesis will earn highest

Interested students may apply to the director of undergraduate studies for admission to the Honors Program in their junior year or the first semester of their senior year. Applicants must meet college requirements for entry to the Honors Program and must maintain a minimum grade point average of 3.6 in courses that count toward the mathematics major.

The application includes a one- to two-page proposal of the planned thesis and the signature of the faculty member who will be the thesis adviser.

The thesis must be submitted no later than two weeks before the end of classes in the semester of graduation. The oral examination will take place by the last day of classes in the semester of graduation. Highest honors will be awarded for a thesis that contains original high-quality research results in combination with an oral defense at the highest quality level.

Students may sign up for Math 4999 during one semester of their senior year. Math 4999 will not count toward the 21 credit hours requirement in Program III.

Please consult the director of undergraduate studies for details.

Minor in Mathematics

The minor in mathematics requires at least 15 credit hours in mathematics, including:

1. Completion of a calculus sequence: 2300, 2310, or 2500–2501.
2. Linear algebra and differential equations: as in the Program II major.
3. At least 6 credit hours not used to satisfy item 2 from 2800 or above.

Completion of a single-variable calculus sequence (1300–1301) is a prerequisite for the minor, but does not count toward the credit hours of the minor.

Licensure for Teaching

Candidates for teacher licensure at the secondary level in mathematics should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Calculus

Several calculus sequences are available: 1100; 1200–1201; 1300–1301–2300; 1300-1301-2310.

The courses in these sequences cover similar material, but at different rates, and therefore overlap in content and credit. Students should not switch from one to another without approval of the department. Such switching may result in loss of credit. Students intending to take mathematics classes beyond one year of calculus are advised to enroll in the 1300–1301–2300 sequence or in the 1300-1301-2310 sequence.

First-year students with test scores of 5 on the Calculus BC advanced placement examination, thereby earning AP credit for 1300–1301, may choose to enroll in the 2500–2501 sequence. The combination of 2500–2501 is a blend of multivariable calculus and linear algebra, with an emphasis on rigorous proofs.

Mechanical Engineering

CHAIR Nilanjan Sarkar

ASSOCIATE CHAIR Haoxiang Luo

DIRECTOR OF UNDERGRADUATE STUDIES Kenneth D. Frampton

DIRECTOR OF GRADUATE STUDIES Jason G. Valentine

DIRECTOR OF GRADUATE RECRUITING Leon M. Bellan

PROFESSORS EMERITI Thomas A. Cruse, Donald L. Kinser, Robert L. Lott Jr., Carol A. Rubin, Taylor G. Wang, John W. Williamson

PROFESSORS Douglas E. Adams, Eric J. Barth, Joshua D. Caldwell, Michael Goldfarb, S. Duke Herrell, Deyu Li, Haoxiang Luo, Sankaran Mahadevan, Caglar Oskay, Robert W. Pitz, Nilanjan Sarkar, Nabil Simaan Alvin M. Strauss, Jason G. Valentine, Robert J. Webster III

PROFESSORS OF THE PRACTICE Amrutur V. Anilkumar, Kenneth D. Frampton, Thomas J. Withrow

ADJOINT PROFESSOR Dong Cha, Simone De Liberato, Pietro Vadastri, Peiyong Wang

ASSOCIATE PROFESSORS Leon M. Bellan, Ravindra Duddu, Greg Walker, Karl E. Zelik

RESEARCH ASSOCIATE PROFESSOR Kevin Galloway

ASSISTANT PROFESSORS David J. Braun, Ziaoguang Dong, Piran Kidambi, Justus C. Ndukaife, Jie Ying Wu

ASSISTANT PROFESSORS OF THE PRACTICE Jason Mitchell, Ranjana Sahai

RESEARCH ASSISTANT PROFESSOR Richard J. Hendrick

ADJOINT ASSISTANT PROFESSOR Thomas Folland, Carl A. Hall, Stephanie Law, Derek Wolf

COURSES OFFERED: ME

The vitality of our nation depends upon innovation in the design of new machines, devices to satisfy society's needs, engines to produce power efficiently, equipment to condition the environment of our buildings, and the systems to use and control these engineered products. Mechanical engineers are involved in solving problems by originating design concepts, developing products and processes of manufacture, and designing hardware and the systems needed to satisfy society's demands. Mechanical engineers work in virtually all industries.

The study of mechanical engineering requires a basic understanding of mathematics, chemistry, physics, and the engineering sciences. Mechanical engineering education emphasizes solid mechanics; dynamics of machines; aerodynamics; propulsion devices; material behavior; power producing and environmental conditioning processes; control of dynamics of machines; energy conversion; and the synthesis, development, evaluation, and optimization of designs of devices and systems.

Degree Programs. The Department of Mechanical Engineering offers the B.E., M.Eng., M.S., and Ph.D. in mechanical engineering.

The curriculum in mechanical engineering leading to a bachelor of engineering provides a broad-based engineering education with opportunities for the student to elect courses in areas of study related to any industry and, with careful planning of the elective courses, to achieve some specialization. The mechanical engineering program prepares an individual to become a practicing engineer who can participate fully in the engineering activities of design, building, operation, production, maintenance, safety, marketing, sales, research, and administration.

Undergraduate Honors Program. See the Special Programs chapter for general requirements of the professional Honors Program in mechanical engineering. Honors candidates choose their technical elective courses with the advice and consent of an honors adviser. Each candidate is expected to take 3 hours of ME 3860 in a single semester and at least 6 hours of graduate courses numbered 5000 or higher, including one course numbered 8000 or higher. A formal written honors thesis on the candidate's research must be approved by the honors adviser and the department chair. Honors candidates shall meet all Engineering School requirements in the nontechnical areas. The diploma designation is Honors in Mechanical Engineering.

Facilities. Undergraduate instructional laboratories are equipped for studies in heat and power, refrigeration and air-conditioning, fluid flow, heat transfer, design, controls, robotics, instrumentation, and biomechanics. Specialized facilities for robotic surgery, rehabilitation robotics, energy storage, medical microfluidics, thermal transport, combustion characterization, and photonics are used for both faculty-led research and instruction. The department also maintains various maker spaces including machine shops and design studios for fabrication of experimental equipment and for instruction.

Curriculum Requirements

The B.E. in mechanical engineering requires a minimum of 126 hours, distributed as follows:

1. Mathematics (17 hours). Required courses: MATH 1300, 1301, 2300, 2420. Required elective: MATH courses numbered 2410 and above, except MATH 3000.
2. Basic Science (16 hours). Required courses: CHEM 1601, 1601L; MSE 1500, 1500L (or CHEM 1602, 1602L); PHYS 1601, 1601L, 1602, 1602L.
3. Engineering Science (25 hours). Required courses: ES 1401, 1402, 1403; CE 2200, 2205; CS 1100 or 1101 or 1103 or 1104; ECE 2112; ME 2190, 2220, 3224; MSE 2205.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the

Degree Programs in Engineering.

5. Open electives (6 hours).
6. ME core (26 hours). ME 2160, 2171, 3202, 3204, 3234, 3248, 4213, 4950, 4951, and 4959
7. Technical electives (9 hours). To be selected from the following approved courses. Courses selected from the College of Arts and Science must be designated a Mathematics and Natural Sciences (MNS) course in the AXLE curriculum.
    a. School of Engineering courses except CS 1000, 1151; ENGM 2440, 3350, 4800; ES 2700, 2900, 3884; and any course numbered 2860
    b. Mathematics courses numbered 2420 or higher except MATH 3000
    c. Chemistry courses numbered 2000 or higher
    d. Physics courses numbered 2000 or higher
    e. Astronomy courses
    f. Biological Science courses
    g. Earth and Environmental Science courses
    h. Neuroscience courses

At least 3 hours of technical electives must be numbered 2000 or above.

1. Professional (ME) depth (a minimum of 9 hours). Each student must choose at least 9 hours of ME elective courses. No more than 6 hours of 3850 and 3860 combined can be credited toward ME depth electives.

No one-credit-hour ME course except 3841 can be used as a mechanical engineering elective. A maximum of three one-credit-hour ME courses may be used as technical electives. Additional ME one-credit-hour courses can be open electives. At least one “W”-designated course (3 hours) in the English language must be included on a graded basis.

Undergraduates in mechanical engineering may apply the pass/fail option only to non-departmental courses taken as open electives, technical electives, or part of the liberal arts core, subject to the school requirements for pass/fail.

Specimen Curriculum for Mechanical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
ME 2160	Introduction to Mechanical Engineering Design	3	–
MATH 2300	Multivariable Calculus	3	–
MATH 2420	Methods of Ordinary Differential Equations	–	3
PHYS 1602, 1602L	General Physics II and Laboratory	4	–
CE 2200	Statics	3	–
ME 2171	Instrumentation Laboratory	–	2
ME 2190	Dynamics	–	3
ME 2220	Thermodynamics	–	3
ECE 2112	Circuits I	–	3
	Liberal Arts Core	3	3
		16	17
JUNIOR YEAR		FALL	SPRING

ME 3202	Machine Analysis and Design	3	–
ME 3204	Mechatronics	–	3
ME 3224	Fluid Mechanics	3	–
ME 3234	System Dynamics	4	–
ME 3248	Heat Transfer	–	3
CE 2205	Mechanics of Materials	3	–
MSE 2205	Strength and Structure of Engineering Materials	1	–
	Mechanical Engineering Elective	–	3
	Open Elective	–	3
	Liberal Arts Core	3	–
	Mathematics Elective	–	3
		17	15
SENIOR YEAR			
ME 4213	Energetics Laboratory	2	–
ME 4950	Design Synthesis	2	–
ME 4951	Engineering Design Projects	–	3
ME 4959	Senior Engineering Design Seminar	1	–
	Mechanical Engineering Elective	3	3
	Liberal Arts Core	3	3
	Technical Elective	6	3
	Open Elective	–	3
		17	15

Medicine, Health, and Society

DIRECTOR Jonathan M. Metzl

ASSISTANT DIRECTOR JuLeigh Petty

DIRECTOR OF UNDERGRADUATE STUDIES Dominique Behague

DIRECTOR OF GRADUATE STUDIES JuLeigh Petty

DIRECTOR OF ADVISING Courtney S. Peterson

DIRECTOR OF EVALUATION JuLeigh Petty

PROFESSORS Christopher Carpenter (Economics), Jonathan M. Metzl, Hector Myers

ASSOCIATE PROFESSORS Dominique Béhague, Aimi Hamraie, Martha W. Jones, Kenneth MacLeish, Lijun Song, Laura Stark

ASSISTANT PROFESSORS Kirsty Clark, Gilbert Gonzales, Lucie Kalousova, Bianca Manago (Sociology), Tara McKay

ASSISTANT PROFESSORS OF PRACTICE Jamie Pope

SENIOR LECTURERS Celina Callahan-Kapoor, Courtney S. Peterson, JuLeigh Petty

WRITERS IN RESIDENCE Odie Lindsey, Samuel Quinones, Caroline Williams

Affiliated Faculty

PROFESSORS Kathryn Anderson (Economics), Victor Anderson (Christian Ethics), David Aronoff (Medicine), Gregory Barz (Ethnomusicology), Michael Bess (History), James Blumstein (Health Law and Policy), Frank Boehm (Obstetrics and Gynecology), Peter Buerhaus (Nursing), C. André Christie-Mizell (Sociology), Larry Churchill (Medicine), Ellen Clayton (Pediatrics and Law), Jay Clayton (English), Charles Cobb (Molecular Physiology and Physics), Bruce Compas (Psychology and Human Development), Katherine Crawford (History), Kate Daniels (English), Dennis Dickerson (History), Edward Fisher (Anthropology), Lenn Goodman (Philosophy), Douglas Heimburger (Medicine), Joni Hersch (Law and Economics), David Hess (Sociology), Kathleen Hoover-Dempsey (Psychology and Human Development), Sarah Igo (History), Carl Johnson (Biological Sciences), Cindy Kam (Political Science), John Lachs (Philosophy), Jane Landers (History), Jana Lauderdale (Nursing), Pat Levitt (Pharmacology), Terry A. Maroney (Law), Richard McCarty (Psychology), Melissa McPheeters (Health Policy), Timothy McNamara (Psychology), Velma McBride Murry (Human and Organizational Development), Linda Norman (Nursing), Russell Rothman (Medicine), Sharon Shields (Human and Organizational Development), John Tarpley (Surgery), Benigno Trigo (Spanish), Arleen Tuchman (History), Holly Tucker (French), Bart Victor (Organization Studies), Kip Viscusi (Law and Economics), Lynn Walker (Pediatrics and Psychology and Human Development), Kenneth Wallston (Nursing and Psychology), David W. Wright (Chemistry), Laurence Zwiebel (Biological Sciences)

ASSOCIATE PROFESSORS Muktar Aliyu (Health Policy and Medicine), Laura Carpenter (Sociology), Beth Conklin (Anthropology), Julián F. Hillyer (Biological Sciences), Rolanda Johnson (Nursing), Melanie Lutenbacher (Nursing), Abelardo Moncayo (Health Policy), Ifeoma Nwankwo (English), Evelyn Patterson (Sociology), Scott Pearson (Surgery), Louise Rollins-Smith (Nursing), Ruth Rogaski (History), Norbert Ross (Anthropology), David Schlundt (Psychology), Phillis Sheppard (Religion), Tiffiny Tung (Anthropology), Timothy J. Vogus (Management and Organization Studies)

ASSISTANT PROFESSORS Carolyn Audet (Preventive Medicine), Ian Campbell (Clinical Medicine), Joseph B. Fanning (Medicine), Ebony McGee (Education), Troy Moon (Pediatric Infectious Disease), Sayeh Nikpay (Health Policy), Kevin T. Seale (Biomedical Engineering)

SENIOR LECTURERS Lorraine Catanzaro (Spanish), Nathalie Porter (French), Elisabeth H. Sandberg (Psychology)

COURSES OFFERED: MHS

The Program in Medicine, Health, and Society offers an interdisciplinary major (36 credit hours) and minor (18 credit hours) for students interested in studying health-related beliefs and practices in their social and cultural contexts. As part of the requirements of the major, students must declare and complete 12 credit hours in one of the six concentrations in Medicine, Health, and Society: global health; health behaviors and health sciences; health economics and policy; inequality, intersectionality, and health justice; medicine, humanities, and arts; or critical health studies. An honors program is available. MHS draws on a variety of fields in the social sciences and humanities—anthropology, economics, history, literature, philosophy/ethics, psychology, sociology, and religious studies. The major will be of particular interest to students preparing for careers in health-related professions as well as to students interested in examining an important part of human experience from multiple perspectives and developing a critical understanding of contemporary society. Students are encouraged to take advantage of the opportunities offered by the Center for Medicine, Health, and Society. Visit vanderbilt.edu/mhs for more details.

The program is directed by Jonathan M. Metzl, Frederick B. Rentschler II Professor of Sociology and Medicine, Health, and Society.

Program of Concentration in Medicine, Health, and Society

The major requires a minimum of 36 credit hours of course work, distributed as follows:

Note: No more than 21 credit hours may be in courses designated MHS. Other than MHS, no more than 12 credit

hours may be in the same subject area; A&S Psychology and Peabody Psychology are considered the same subject area for purposes of the major/minor.

1. Core Courses — Students must complete one of the following (3 credit hours):

MHS 1920, Politics of Health

MHS 1930, Social Dimensions of Health and Illness

MHS 1940, Racial and Ethnic Health Disparities

MHS 1950, Theories of the Body

MHS 2110, American Medicine in the World

MHS 2230, Masculinity and Men's Health

MHS 3890, Topic: COVID and Society

ANTH 2342, Biology of Inequality

2. Concentration — Students must complete four courses not used to satisfy the core course requirement or the elective requirements in one of the following six concentrations (12 credit hours). Students must declare one of the following concentrations when they declare the major.

Note: Courses must be from at least two subject areas.

A. Global health
B. Health policies and economies
C. Health behaviors and health sciences
D. Inequality, intersectionality, and health justice
E. Medicine, humanities, and arts
F. Critical health studies

See below for a list of courses that count for Concentrations A, B, C, D, and E. Students choosing concentration F must propose a set of four courses (12 credit hours) that form a coherent program of study related to critical health studies and receive approval from the director of undergraduate studies.

3. Electives — Seven courses not used to satisfy the core course or concentration requirements chosen from the list of approved courses (21 credit hours).

4. Disciplinary Requirement — At least 3 credit hours from the following courses must be used to satisfy the concentration requirement or electives requirement.

ANTH 2213W, Food, Identity, and Culture

ANTH 3143, Medical Anthropology

ANTH 3141, Anthropology of Healing

ANTH 3345, Genetics in Society

CSET 2500, Science for Everyone

CSET 3890, Genetic Breakthroughs: The Promise

ECON 2350, Health Care Policy

ECON 3350, Economics of Health

GSS 3305, Gender and Sexuality in Times of Pandemic

HIST 2780, Superhuman Civilization

HIST 2800, Modern Medicine

MHS 1960, Health Humanities

MHS 2140, Health Care in the United States: Policy and Politics

MHS 3050W, Medicine and Literature

MHS 3120, Medicine, Science, and Technology

MUSL 3235, Music, Pandemics, and History

PHIL 1008, 1008W, Introduction to Medical Ethics

PHIL 3608, Ethics and Medicine

PSY 3635, Health Psychology

RLST 4834, Post-Freudian Theories and Religion

SOC 3301, Society and Medicine

SOC 3304, Race, Gender, and Health

SOC 3306, Gender and Medical Work

In order to graduate with a major in MHS, students must take a written exam in the second semester of their senior year. (Students who are away during the second semester of their senior year because they are studying abroad or graduating early should schedule the exam during the first semester.) The exam is not graded and no grade will appear on the student's transcript. The purpose of the exam is to ascertain the extent to which MHS majors demonstrate knowledge of the MHS curriculum.

Honors Program

The Honors Program in Medicine, Health, and Society offers superior students a more intensive concentration within their major field. Admission to the program requires:

1. *A 3.3 cumulative grade point average.*
2. *A 3.3 cumulative grade point average in courses that count toward the Medicine, Health, and Society major.*
3. *An application that (a) describes the proposed topic; (b) identifies the faculty member who will serve as the thesis adviser; and (c) includes a letter of recommendation from the proposed thesis adviser.*

Completion of the program requires:

1. Two semesters, 3 credit hours each semester of the senior year in MHS 4998/4999.
2. An honors thesis of approximately fifty pages that reveals an interdisciplinary perspective, submitted no later than two weeks before the first day of final exams in the second semester of the senior year, and approved by a committee of at least two faculty members (one of whom must have their primary appointment in Medicine, Health, and Society).
3. Successful completion of an oral examination focusing on the topic of the thesis.

Minor in Medicine, Health, and Society

The minor consists of a minimum of 18 credit hours of course work, distributed as follows:

Note: No more than 9 credit hours may be in the same subject area; A&S Psychology and Peabody Psychology are considered the same subject area for purposes of the major/minor.

1. Core Courses — Students must complete one of the core courses of the major (3 credit hours).
2. Concentration — Students must complete three courses in one of the following five concentrations (9 credit hours). Students must declare one of the following concentrations when they declare the minor.
    A. Global health
    B. Health policies and economies

C. Health behaviors and health sciences
D. Inequality, intersectionality, and health justice
E. Medicine, humanities, and arts

3. Electives — Two additional courses, excluding those with an asterisk, chosen from the list of approved courses. (6 credit hours)
4. Disciplinary Requirement — At least 3 credit hours from the following courses must be used to satisfy the concentration requirement or electives requirement.

ANTH 2213W, Food, Identity, and Culture

ANTH 3143, Medical Anthropology

ANTH 3141, Anthropology of Healing

ANTH 3345, Genetics in Society

CSET 2500, Science for Everyone

CSET 3890, Genetic Breakthroughs: The Promise

ECON 2350, Health Care Policy

ECON 3350, Economics of Health

GSS 3305, Gender and Sexuality in Times of Pandemic

HIST 2780, Superhuman Civilization

HIST 2800, Modern Medicine

MHS 1960, Health Humanities

MHS 2140, Health Care in the United States: Policy and Politics

MHS 3050W, Medicine and Literature

MHS 3120, Medicine, Science, and Technology

MUSL 3235, Music, Pandemics, and History

PHIL 1008, 1008W, Introduction to Medical Ethics

PHIL 3608, Ethics and Medicine

PPS 3200, Research Methods for Public Policy Analysis

PSY 3635, Health Psychology

RSLT 4834, Post-Freudian Theories and Religion

SOC 3301, Society and Medicine

SOC 3304, Race, Gender, and Health

SOC 3306, Gender and Medical Work

Approved Courses

(Please consult the director of undergraduate studies for approval of “as appropriate” courses in concentration areas.)

CONCENTRATION A: Global Health

AMERICAN STUDIES: 3200, Global Perspectives on the U.S.

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2113W, Food, Identity, and Culture; 3122, The Anthropology of Globalization; 3138 Global Food Politics; 3143, Medical Anthropology.

ASIAN STUDIES: 2630, Chinese Medicine.

BIOLOGICAL SCIENCES: 1111, First-Year Writing Seminar (as appropriate); 3965, Undergraduate Seminar (as appropriate). FRENCH: 3112, Medical French in Intercultural Contexts.

COMMUNICATION OF SCIENCE AND TECHNOLOGY: 3890, Genetic Breakthroughs: The Promise

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2267, Seminar on Gender and Violence; 3201, Women and Gender in Transnational Context; 3305, Gender and Sexuality in Times of Pandemic.

HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2160, Medicine in Islam.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3200, Global Dimensions of Community Development; 3231, Introduction to Health Services.

INTERDISCIPLINARY STUDIES: 3831, Global Citizenship and Service; 3832, Global Community Service; 3833, Seminar in Global Citizenship and Service (as appropriate).

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future.

MEDICINE, HEALTH, AND SOCIETY: 2110, American Medicine and the World; 2140, Health Care in the United States: Policy and Politics; 2310, Chinese Society and Medicine; 2410, HIV/AIDS in the Global Community; 2420, Economic Demography and Global Health; 2610, Global Health Crises; 2940, Race, Citizenship, and Health; 3000, Undergraduate Seminar (as appropriate); 3010, Perspectives on Global Public Health; 3110, Global Health and Social Justice; 3310, Healthcare Systems Comparisons; 3890, Special Topics (as appropriate); 4010, Psychiatry, Culture, and Globalization.

POLITICAL SCIENCE: 1111, First-Year Writing Seminar (as appropriate); 2215, Change in Developing Countries; 2236, The Politics of Global Inequality; 3893, Selected Topics in American Government (as appropriate); 3894, Selected Topics in Comparative Politics (as appropriate).

PUBLIC POLICY STUDIES: 3200, Research Methods for Public Policy Analysis.

RELIGIOUS STUDIES: 3890, Special Topics - Mindfulness, Religion, and Healing.

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3314, Environmental Inequality and Justice; 3321, Population and Society. SPANISH: 3830, Spanish for the Medical Profession; 4760, Literature and Medicine.

CONCENTRATION B: Health Policies and Economies

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2109, Food Politics in America; 3144, Politics of Reproductive Health; 3890, Special Topics (as appropriate).

ECONOMICS: 1010, Principles of Macroeconomics; 1020, Principles of Microeconomics; 1111, First-Year Writing Seminar (as appropriate); 1500, Economic Statistics; 1510, Intensive Economic Statistics; 2350, Health Care Policy; 3050, Introduction to Econometrics; 3350, Economics of Health.

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate). HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2800, Modern Medicine.

HISTORY: 2780, Superhuman Civilization.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3231, Introduction to Health Services; 3241, Introduction to Health Policy; 3331, Managing Health Care Organizations; 3205, Policy Analysis Methods.

LATIN AMERICAN STUDIES: 2102, Brazil: Past, Present, and Future.

MEDICINE, HEALTH, AND SOCIETY: 1920, Politics of Health; 2120, Health Social Movements; 2140, Health Care in the United States: Policy and Politics; 2520, Autism in Context; 2320, Medicine, Law, and Society; 2420, Economic Demography and Global Health; 2920, Medicine on Trial; 3000, Undergraduate Seminar (as appropriate); 3120, Medicine, Science, and Technology; 3320, Introduction to U.S. Health Care Policy; 3890, Special Topics (as appropriate).

PHILOSOPHY: 1008, 1008W, Introduction to Medical Ethics; 1111, First-Year Writing Seminar (as appropriate); 3608, Ethics and Medicine.

POLITICAL SCIENCE: 1111, First-Year Writing Seminar (as appropriate); 2236, The Politics of Global Inequality; 2270, Conducting Political Research; 3893, Selected Topics in American Government (as appropriate); 3894, Selected Topics in Comparative Politics (as appropriate).

PUBLIC POLICY STUDIES: 3200, Research Methods for Public Policy Analysis.

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3302, Poverty, Health, and Politics; 3306, Gender and Medical Work; 3314, Environmental Inequality and Justice; 4961, Seminars in Selected Topics (as appropriate).

UNIVERSITY: 3325, Health Policy Analysis and Advocacy.

CONCENTRATION C: Health Behavior and Health Sciences

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2227, Food in the Ancient World; 3344, Genetic Anthropology Lab Techniques; 3345, Genetics in Society; 3346, Human Adaptation and Disease; 3890,

Special Topics (as appropriate); 4345, Human Evolutionary Genetics.

BIOLOGICAL SCIENCES: 1105, Human Biology; 1111, First-Year Writing Seminar (as appropriate); 3243 Genetics of Disease; 3245, Biology of Cancer; 3254, Neurobiology of Behavior; 3270, Statistical Methods in Biology; 3965, Undergraduate Seminar (as appropriate).

BIOMEDICAL ENGINEERING: 3200, Analysis of Biomedical Data.

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2240, Introduction to Women's Health.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3221, Health Service Delivery to Diverse Populations; 3311, Introduction to Health Promotion.

MEDICINE, HEALTH, AND SOCIETY: 1930, Social Dimensions of Health and Illness; 1940, Racial and Ethnic Health Disparities; 2120, Health Social Movements; 2330, Men's Health Research and Policy; 2430, Social Capital and Health; 2950, Healing Animals; 3000, Undergraduate Seminar (as appropriate); 3030, Community Health Research; 3450, Mental Illness Narratives; 3890, Special Topics (as appropriate).

NEUROSCIENCE: 2201, Neuroscience; 3235, Biological Basis of Mental Disorders.

PSYCHOLOGY: 1111, First-Year Writing Seminar (as appropriate); 1200, General Psychology; 2100, Quantitative Methods; 2150, Principles of Experimental Design; 3100, Abnormal Psychology; 3620, Schizophrenia; 3625, Depression; 3635, Health Psychology; 3705, Human Sexuality; 3750, Perception; 3760, Mind and Brain; 3785, Brain Damage and Cognition; PSY-PC-1250, Developmental Psychology; PSY-PC 2102, Statistical Analysis; PSY-PC 2110, Introduction to Statistical Analysis; PSY-PC-2250, Cognitive Aspects of Human Development; PSY-PC-2300, PSY-PC- Social and Emotional Context of Cognition; PSY-PC-2550, Adolescent Development; PSY-PC-3650, Advanced Topical Seminar (approval dependent upon topic).

SOCIOLOGY: 1010, 1010W, Introduction to Sociology; 1020, 1020W, Contemporary Social Issues; 1111, First-Year Writing Seminar (as appropriate); 2100, Statistics for Social Scientists; 3002, Introduction to Social Research; 3003, Research Practicum; 3301, Society and Medicine; 3303, Social Dynamics of Mental Health; 4961, Seminars in Selected Topics (as appropriate). **Only one of SOC 1010 or 1020 may be counted towards the major or minor* .

CONCENTRATION D: Inequality, Intersectionality, and Health Justice

AFRICAN AMERICAN AND DIASPORA STUDIES: 1016, Race Matters; 1111, First-Year Writing Seminar (as appropriate); 3214, Black Masculinity: Social Imagery and Public Policy.

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2213W, Food, Identity, and Culture; 2342, Biology of Inequality; 3120, Sociocultural Field Methods (as appropriate); 3144, Politics of Reproductive Health; 3343, Biology and Culture of Race; 3345, Genetics in Society; 3890, Special Topics (as appropriate); 4345, Human Evolutionary Genetics.

COMMUNICATION OF SCIENCE AND TECHNOLOGY: 3890, Genetic Breakthroughs: The Promise

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2268, Gender, Race, Justice, and the Environment; 3305, Gender and Sexuality in Times of Pandemic.

HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2780, Superhuman Civilization; 3040, Health and the African American Experience.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3221, Health Service Delivery to Diverse Populations.

MEDICINE, HEALTH, AND SOCIETY: 1940, Racial and Ethnic Health Disparities; 2230, Masculinity and Men's Health; 2240, Bionic Bodies, Disability Cultures; 2330, Men's Health Research and Policy; 2940, Race, Citizenship, and Health; 3000, Undergraduate Seminar (as appropriate); 3030, Community Health Research; 3040, Designing Healthy Publics; 3890, Special Topics (as appropriate).

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3301, Society and Medicine; 3304, Race, Gender, and Health; 3306, Gender and Medical Work; 3321, Population and Society; 3723, Gender, Sexuality, and the Body; 4961, Seminars in Selected Topics (as appropriate).

CONCENTRATION E: Medicine, Humanities, and Arts

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 2370, Death and the Body; 3141, Anthropology of Healing; 3142, Medicine, Culture, and the Body; 3143, Medical Anthropology; 3345, Genetics in Society.

ASIAN STUDIES: 2630, Chinese Medicine.

COMMUNICATION STUDIES: 3750, Rhetoric of the Body.

ENGLISH: 1111, First-Year Writing Seminar (as appropriate); 3720, 3720W, Literature, Science, and Technology (as appropriate); 3730, Literature and the Environment: Contemporary Climate Fiction; 3891, Special Topics in Creative Writing (as appropriate).

GENDER AND SEXUALITY STUDIES: 1111, First-Year Writing Seminar (as appropriate); 2267, Seminar on Gender and Violence; 2612, Lesbian, Gay, Bisexual, and Transgender Studies.

HISTORY: 1111, First-Year Writing Seminar (as appropriate); 2160, Medicine in Islam; 2800, Modern Medicine; 2810, Women, Health, and Sexuality; 2835, Sexuality and Gender in the Western Tradition to 1700; 2840, Sexuality and Gender in the Western Tradition since 1700; 3040, Health and the African American Experience.

HISTORY OF ART AND ARCHITECTURE: 3140, Healing and Art in East Asia.

JEWISH STUDIES: 2710W, Jewish Sexual Ethics.

MEDICINE, HEALTH, AND SOCIETY: 1111, First-Year Writing Seminar: Medicine, Health, and the Body; 1960, Health Humanities; 2230, Masculinity and Men's Health; 2250, War and the Body; 2950, Healing Animals; 3000, Undergraduate Seminar (as appropriate); 3050W, Medicine and Literature; 3120, Medicine, Science, and Technology; 3150, Death and Dying in America; 3250, Perspectives on Trauma; 3450, Medical Illness Narratives; 3890, Special Topics (as appropriate); 4010, Psychiatry, Culture, and Globalization; 4050, Narrative and Medicine: Stories of Illness and the Doctor-Patient Relationship.

MUSICOLOGY/ETHNOMUSICOLOGY: 3235, Music, Pandemics, and History.

PHILOSOPHY: 1008, 1008W, Introduction to Medical Ethics; 1111, First-Year Writing Seminar (as appropriate); 3606, 3606W, Moral Problems; 3608, Ethics and Medicine; 3630, Philosophy of Mind.

RELIGIOUS STUDIES: 3941, Religion, Science, and Evolution: Psychology of Religious Myth and Ritual.

SOCIOLOGY: 1111, First-Year Writing Seminar (as appropriate).

SPANISH: 4760, Literature and Medicine.

OTHER ELECTIVES

In addition to the electives listed below, any course from the above concentration areas may serve as an elective if it is not already being used to satisfy a concentration requirement. No more than 12 hours of courses with an asterisk in the list below may be used to satisfy the major. Courses with an asterisk may not be used to satisfy the minor. (Please consult the director of undergraduate studies for approval of "as appropriate" courses for electives.)

ANTHROPOLOGY: 1111, First-Year Writing Seminar (as appropriate); 1301, Introduction to Biological Anthropology; 3372, Human Osteology; 4373, Health and Disease in Ancient Populations.

BIOLOGICAL SCIENCES: *1510–1511, Introduction to Biological Sciences; *2520, Biochemistry.

CHEMISTRY: *2221–2222, Organic Chemistry; *2211–2212, Organic Chemistry for Advanced Placement Students.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 3342, Introduction to Community Psychology (same as PSY-PC); 3890, Health Promotion Delivery.

MATHEMATICS: 1011, Probability and Statistical Inference; 2810, Probability and Statistics for Engineering; 2820, Introduction to Probability and Mathematical Statistics.

MEDICINE, HEALTH, AND SOCIETY: 1001, Commons Seminar; *1500, Introduction to Microbiology; *1600, Introduction to Nutrition and Health for a Changing World; *3101–3102, Anatomy and Physiology; 3831, Service Learning Research and Readings (Note: 3831, Service Learning Research and Readings, must be taken concurrently with 3830); 3850, Independent Study; 3881, Internship Readings and Research (Note: 3881, Internship Readings and Research, must be taken concurrently with 3880).

PHILOSOPHY: 1111, First-Year Writing Seminar (as appropriate); 3606, 3606W, Moral Problems; 3630, Philosophy of Mind.

PSYCHOLOGY: 1111, First-Year Writing Seminar (as appropriate); 3600, Personality; 3610, Introduction to Clinical Psychology OR PSY-PC- 3200, Introduction to Clinical Psychology; 3615, Emotion; PSY-PC-1205, PSY-PC-1207, Minds, Brains, Cultures, and Contexts; PSY-PC-2400, Social and Personality Development; PSY-PC-2500, Infancy; PSY-PC-2550, PSY-PC-3650, Advanced Topical Seminar (as appropriate).

SOCIOLOGY: 4961, Seminars in Selected Topics (as appropriate).

Music at Vanderbilt (Blair)

The Blair School of Music focuses on the personal and professional education of highly talented young musicians who demonstrate an exceptional capacity and motivation to shape our increasingly diverse and complex global century—through music, with music, and in music.

Our unique “Blair Experience” builds on the very foundation of methods, repertories, and ensembles shared by the world's most competitive schools of music and conservatories but goes well beyond that, immersing students in the transformative spaces of a world-class research university committed to inclusive excellence with distinction in areas ranging from theology to science, arts to engineering, humanities to business, and education to law. Graduates of the Blair School are recognized as superior artists and scholars distinguished by their global mindsets, broad interdisciplinary competencies, and unyielding commitments to advocacy, entrepreneurship, and education.

The Blair School has been an integral part of Nashville’s musical environment since its founding in 1964 by the Justin and Valere Potter Foundation through a bequest of Valere Blair Potter. In 1981 the school was merged with Vanderbilt following the university’s decision to develop an excellent program in music. Studies leading to the professional bachelor of music in performance were initiated in 1986.

The Bachelor of Music degree program includes majors in performance, composition, jazz studies, and integrated studies. The performance major is available in any orchestral instrument, piano, saxophone, euphonium, and voice. The major in composition emphasizes analytical skills as well as the development of students’ creativity. The jazz studies major offers a focus on American and non-Western music traditions while also developing the core fundamentals of Western music common to all Blair majors. The integrated studies major combines the study of composition or a performance area with an additional concentration in music and forms the basis for a five-year program in teacher education offered cooperatively with Peabody College. In the Bachelor of Musical Arts degree program, composers and performers complete an in-depth music study in addition to a field outside of music.

A non-professional 31-hour liberal arts music major makes it possible for students outside the Blair School to choose music as a second major. Students in other schools and colleges of the university also may pursue a minor in music, music composition, musicology/ethnomusicology, or music performance. And Blair offers a remarkable variety of electives for students who wish to enrich their studies with credit in music courses, ensembles, or performance instruction, or to select music as an extracurricular activity.

Blair School of Music is home to internationally known faculty soloists and ensembles, and Blair’s performers, composers, ethnomusicologists, and musicologists are among the most respected in their fields. Members of the faculty ensembles provide private performance instruction and coach chamber music ensembles and performance classes. The faculty's dedication to teaching and a low student/faculty ratio provide students the personal attention that fosters maximum musical growth and understanding. The school is committed to its goal of developing students who are among the most articulate, culturally aware, and artistically sensitive of any

graduates in the country.

Facilities

The Blair building incorporates innovative developments in acoustical design and engineering. It contains teaching studios and faculty offices, classrooms, rehearsal halls, practice rooms, library, administrative offices, technology and keyboard labs, and concert venues. The 272-seat Steve and Judy Turner Recital Hall is the locus for student recitals and concerts and master classes by faculty members and visiting artists held on a regular basis. It also houses the Dobson Organ Opus 92 (2014), designed in the tradition of eighteenth-century eastern German organs not unlike those Bach knew, with additions and accommodations for twenty-first century use. Opened in spring 2002, the 609-seat Ingram Hall garnered immediate acclaim for its superb acoustics, its visual beauty, and its enhancement of the school's ability to host and produce orchestra, opera, and other major concert events.

The Anne Potter Wilson Music Library is a division of the Jean and Alexander Heard Libraries. The collection, begun in 1947, was moved from Peabody College to its new and permanent home at Blair in the summer of 1985. Named to honor Anne Potter Wilson by the Vanderbilt Board of Trust in 1987, the 12,000-square-foot library holds more than 116,000 books, scores, sound and video recordings, and subscriptions to journals and online music databases. It is equipped with a seminar room, listening and viewing stations, computer workstations, and study facilities. A variety of equipment is available for check out including laptops, microphones, phone chargers, midi keyboards, headphones, and umbrellas. Music librarians and staff are available to assist users with music research and finding resources for performance, study, or instruction.

The Blair Concert Series

The Blair Concert Series offers a broad array of music performances to the university community and the region. National and international artists and ensembles, the Blair faculty, including resident ensembles and soloists, and student ensembles and performers are all featured. All student recitals are open to the public. More than 350 concerts are presented at the school each year, and most are free of charge, as a gift to the community.

A milestone in the Blair School's history was "The Blair Commissions: Music for the 21st Century," a project funded by the James Stephen Turner Family Charitable Foundation, which has commissioned several important works by renowned composers from 2005 through 2019. These include works by Susan Botti and Peter Schickele and four major works by Michael Hersch. Each composition received its premiere in Nashville, and all the works were then either recorded or performed in New York. The project has served two intertwined missions: to promote the composition of outstanding works by the world's leading composers and to invite attention to the excellent ensembles and faculty performers of Vanderbilt University.

Composers-in-residence who have visited the Blair School include Robert Beaser, William Bolcom, Susan Botti, George Crumb, Michael Daugherty, Lukas Foss, Gabriela Lena Frank, John Harbison, Michael Hersch, Karel Husa, Steven Mackey, Donald Martino, Cindy McTee, Jessie Montgomery, Kevin Puts, Christopher Rouse, Adam Schoenberg, Joseph Schwantner, Frank Ticheli, Michael Torke, and Joan Tower.

Blair Academy at Vanderbilt

Individual, group, class, and ensemble instruction for precollege and adult students (defined as students above high school age not receiving university credit) is offered through the Blair Academy at Vanderbilt. Course offerings are available at blair.vanderbilt.edu/blair-academy/.

Nanoscience and Nanotechnology

DIRECTORS Paul E. Laibinis, Sandra J. Rosenthal

Affiliated Faculty

PROFESSORS Joshua D. Caldwell (Mechanical Engineering) David E. Cliffel (Chemistry), Craig L. Duvall

(Biomedical Engineering), Philippe M. Fauchet (Electrical Engineering), Daniel M. Fleetwood (Electrical and Computer Engineering), Todd D. Giorgio (Biomedical Engineering), Scott A. Guelcher (Chemical and Biomolecular Engineering), Richard F. Haglund, Jr. (Physics), Timothy P. Hanusa (Chemistry), Frederick R. Haselton (Biomedical Engineering), G. Kane Jennings (Chemical and Biomolecular Engineering), Michael R. King (Biomedical Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), Deyu Li (Mechanical Engineering), Shihong Lin (Civil and Environmental Engineering), Clare M. McCabe (Chemical and Biomolecular Engineering), Sokrates T. Pantelides (Physics), Peter N. Pintauro (Chemical and Biomolecular Engineering), Cynthia A. Reinhart-King (Biomedical Engineering), Sandra J. Rosenthal (Chemistry), Florence Sanchez (Civil Engineering), Ronald D. Schrimpf (Electrical and Computer Engineering), Norman H. Tolk (Physics), Kalman Varga (Physics), Sharon M. Weiss (Electrical and Computer Engineering), John P. Wikswo, Jr. (Physics), David W. Wright (Chemistry)

ASSOCIATE PROFESSORS Leon Bellan (Mechanical Engineering), Janet E. Macdonald (Chemistry), Bridget R. Rogers (Chemical and Biomolecular Engineering), Jason G. Valentine (Mechanical Engineering), Greg Walker (Mechanical Engineering), John T. Wilson (Chemical and Biomolecular Engineering)

ASSISTANT PROFESSORS Piran Kidambi (Chemical and Biomolecular Engineering), Justus C. Ndukaife (Electrical and Computer Engineering), Carlos A. Silvera Batista (Chemical and Biomolecular Engineering)

RESEARCH ASSOCIATE PROFESSOR Peter T. Cummings (Chemical and Biomolecular Engineering), James R. McBride (Chemistry)

RESEARCH ASSISTANT PROFESSORS Dmitry Koktysh (Chemistry)

COURSES OFFERED: NANO

Faculty in the School of Engineering and the College of Arts and Science offer an interdisciplinary minor in nanoscience and nanotechnology. The minor is administered by the School of Engineering.

Nanoscience and nanotechnology are based on the ability to synthesize, organize, characterize, and manipulate matter systematically at dimensions of ~1 to 100 nm, creating uniquely functional materials that differ in properties from those prepared by traditional approaches. At these length scales, materials can take on new properties that can be exploited in a wide range of applications such as for solar energy conversion, ultra-sensitive sensing, and new types of vaccines. These activities require the integration of expertise from various areas of science and engineering, often relying on methods of synthesis, fabrication, and characterization that are beyond those encountered in an individual course of study.

Students who minor in nanoscience and nanotechnology learn the principles and methods used in this rapidly growing field. Its core originates in the physical sciences by providing key approaches for describing the behavior of matter on the nanoscale. Synthetic approaches are used to manipulate matter systematically, for creating uniquely functional nanomaterials that can be inorganic, organic, biological, or a hybrid of these. With a third component of characterization, a process for designing systems to have particular properties as a result of their composition and nanoscale arrangement emerges. Students are introduced to these areas through foundational and elective courses for the minor that are specified below, the latter of which can be selected to fulfill the degree requirements for their major.

The minor in nanoscience and nanotechnology is supported by the Vanderbilt Institute of Nanoscale Science and Engineering (VINSE) that brings together faculty from the College of Arts and Science, the School of Engineering, and the Medical Center. A specialized laboratory facility maintained by VINSE provides students in the minor with capstone experiences that allow them to prepare and characterize a variety of nanostructured systems using in-house state-of-the-art instrumentation. This hands-on laboratory component enhances the attractiveness of students to both employers and graduate schools.

Nanoscience and Nanotechnology Minor

The minor in nanoscience and nanotechnology requires a total of 15 credit hours, distributed as follows:

1. Nano Core (9 hours). NANO 3000, PHYS 2660, and either CHEM 2610 or CHBE 4840.
2. Elective courses. 6 hours selected from the following list of approved subjects:

BME 4200	Principles and Applications of BioMicro ElectroMechanical Systems (BioMEMS)
BME 4500	Nanobiotechnology
CHBE 4830	Molecular Simulation
CHBE 4840	Synthesis and Applications of 2D Nanomaterials
CHBE 4850	Semiconductor Materials Processing
CHBE 4860	Molecular Aspects of Chemical Engineering
CHBE 4870	Polymer Science and Engineering
CHBE 4880	Corrosion Science and Engineering
CHEM 2610	Introduction to Nanochemistry
CHEM 3300	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 3630	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
CHEM 5610	Chemistry of Inorganic Materials
EECE 4283	Principles and Models of Semiconductor Devices
EECE 4284	Integrated Circuit Technology and Fabrication
EECE 4288	Optoelectronics
EECE 4385	VLSI Design
EECE 6306	Solid-State Effects and Devices I
IMS 5320	Nanoscale Science and Engineering
IMS 6310	Atomic Arrangements in Solids
ME 8320	Statistical Thermodynamics
ME 8323	Micro/Nanoelectromechanical Systems
ME 8365	Micro/Nanoscale Energy Transport
PHYS 2255	Modern Physics and the Quantum World
PHYS 2660	Experimental Nanoscale Fabrication and Characterization
PHYS 3640	Physics of Condensed Matter

Courses taken to satisfy relevant degree requirements for majors in the College of Arts and Science and the School of Engineering may also be counted toward fulfilling the minor.

Nanoscience and Nanotechnology

DIRECTORS Paul E. Laibinis, Sandra J. Rosenthal

Affiliated Faculty

PROFESSORS David E. Cliffel (Chemistry), Peter T. Cummings (Chemical and Biomolecular Engineering), Craig L. Duvall (Biomedical Engineering), Philippe M. Fauchet (Electrical and Computer Engineering), Daniel M. Fleetwood (Electrical Engineering), Todd D. Giorgio (Biomedical Engineering), Scott A. Guelcher (Chemical and Biomolecular Engineering), Richard F. Haglund, Jr. (Physics), Timothy P. Hanusa (Chemistry), Frederick R. Haselton (Biomedical Engineering), De-en Jiang (Chemical and Biomolecular Engineering), G. Kane Jennings (Chemical and Biomolecular Engineering), Michael R. King (Biomedical Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), Deyu Li (Mechanical Engineering), Sokrates T. Pantelides (Physics), Peter N. Pintauro (Chemical and Biomolecular Engineering), Cynthia A. Reinhart-King (Biomedical Engineering), Sandra J. Rosenthal (Chemistry), Florence Sanchez (Civil and Environmental Engineering), Ronald D. Schrimpf (Electrical Engineering), Norman H. Tolk (Physics), Kalman Varga (Physics), Sharon M. Weiss (Electrical and Computer Engineering), John P. Wikswo, Jr. (Physics), David W. Wright (Chemistry)

ASSOCIATE PROFESSORS Leon Bellan (Mechanical Engineering), Shihong Lin (Civil and Environmental Engineering), Ethan S. Lippman (Chemical and Biomolecular Engineering), Janet E. MacDonald (Chemistry), Bridget R. Rogers (Chemical and Biomolecular Engineering), Jason G. Valentine (Mechanical Engineering), Greg Walker (Mechanical Engineering), John T. Wilson (Chemical and Biomolecular Engineering),

ASSISTANT PROFESSORS Lauren Buchanan (Chemistry), Mona Ebrish (Electrical and Computer Engineering), Piran Kidambi (Chemical and Biomolecular Engineering), Justus C. Ndukaife (Electrical and Computer Engineering), Carlos A. Silvera Batista (Chemical and Biomolecular Engineering)

RESEARCH PROFESSORS Peter T. Cummings (Chemical and Biomolecular Engineering), Clare M. McCabe (Chemical and Biomolecular Engineering), Peter Pintauro (Chemical and Biomolecular Engineering)

RESEARCH ASSOCIATE PROFESSOR James R. McBride (Chemistry)

RESEARCH ASSISTANT PROFESSORS Dmitry Koktysh (Chemistry), Alice Leach (Materials Science)

COURSES OFFERED: NANO

Faculty in the School of Engineering and the College of Arts and Science offer an interdisciplinary minor in nanoscience and nanotechnology. The minor is administered by the School of Engineering.

Nanoscience and nanotechnology are based on the ability to synthesize, organize, characterize, and manipulate matter systematically at dimensions of ~1 to 100 nm, creating uniquely functional materials that differ in properties from those prepared by traditional approaches. At these length scales, materials can take on new properties that can be exploited in a wide range of applications such as for solar energy conversion, ultra-sensitive sensing, and new types of vaccines. These activities require the integration of expertise from various areas of science and engineering, often relying on methods of synthesis, fabrication, and characterization that are beyond those encountered in an individual course of study.

Students who minor in nanoscience and nanotechnology learn the principles and methods used in this rapidly growing field. Its core originates in the physical sciences by providing key approaches for describing the behavior of matter on the nanoscale. Synthetic approaches are used to manipulate matter systematically, for creating uniquely functional nanomaterials that can be inorganic, organic, biological, or a hybrid of these. With a third component of characterization, a process for designing systems to have particular properties as a result of their composition and nanoscale arrangement emerges. Students are introduced to these areas through foundational and elective courses for the minor that are specified below, the latter of which can be selected to fulfill the degree requirements for their major.

The minor in nanoscience and nanotechnology is supported by the Vanderbilt Institute of Nanoscale Science and Engineering (VINSE) that brings together faculty from the College of Arts and Science, the School of Engineering, and the Medical Center. A specialized laboratory facility maintained by VINSE provides students in the minor with capstone experiences that allow them to prepare and characterize a variety of nanostructured systems using in-house state-of-the-art instrumentation. This hands-on laboratory component enhances the attractiveness of students to both employers and graduate schools.

Nanoscience and Nanotechnology Minor

The minor in nanoscience and nanotechnology requires a total of 15 credit hours, distributed as follows:

1. Nano Core (6 hours). NANO 3000 and one of CHEM 2610 or CHBE 4840 or PHYS 2660.
2. Elective courses. 9 hours selected from the following list of approved subjects:

BME 4200	Principles and Applications of BioMicro ElectroMechanical Systems (BioMEMS)
BME 4500	Nanobiotechnology
CHBE 4830	Molecular Simulation
CHBE 4840	Synthesis and Applications of 2D Nanomaterials
CHBE 4850	Semiconductor Materials Processing
CHBE 4860	Molecular Aspects of Chemical Engineering
CHBE 4870	Polymer Science and Engineering
CHBE 4880	Corrosion Science and Engineering
CHEM 2610	Introduction to Nanochemistry
CHEM 3300	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 3630	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
CHEM 5610	Chemistry of Inorganic Materials
ECE 4283	Principles and Models of Semiconductor Devices
ECE 4284	Integrated Circuit Technology and Fabrication
ECE 4288	Optoelectronics
ECE 4385	VLSI Design
ECE 6306	Solid-State Effects and Devices I
IMS 5320	Nanoscale Science and Engineering
IMS 6310	Atomic Arrangements in Solids
ME 8320	Statistical Thermodynamics
ME 8323	Micro/Nanoelectromechanical Systems
ME 8365	Micro/Nanoscale Energy Transport
PHYS 2255	Modern Physics and the Quantum World
PHYS 2660	Experimental Nanoscale Fabrication and Characterization
PHYS 3640	Physics of Condensed Matter

Courses taken to satisfy relevant degree requirements for majors in the College of Arts and Science and the School of Engineering may also be counted toward fulfilling the minor.

Neuroscience

DIRECTOR Douglas G. McMahon

DIRECTOR OF UNDERGRADUATE STUDIES Elizabeth Catania

DIRECTOR OF INDEPENDENT STUDIES Elizabeth Catania

DIRECTOR OF HONORS Meredyth Wegener

Steering Committee

PROFESSORS Timothy McNamara (Psychology), Lisa Monteggia (Pharmacology), Brandt F. Eichman (Biological Sciences)

ASSOCIATE PROFESSOR Suzanna Herculano-Houzel (Psychology and Biological Sciences)

ASSISTANT PROFESSOR OF THE PRACTICE Elizabeth Catania (Neuroscience)

SENIOR LECTURER Meredyth Wegener (Neuroscience)

COURSES OFFERED: NSC

The study of the nervous system is an interdisciplinary enterprise that draws upon a variety of scientific disciplines ranging from molecular biology and biophysics to computational science and engineering to the study of behavior and cognition. To meet the challenge of providing training for entry into this exciting and growing field, Vanderbilt offers an interdisciplinary program of concentration in neuroscience that utilizes expertise from several departments within the university. The program consists of three components. The first provides for a broad foundation in the basic sciences and mathematics. Second, the program provides for exposure to each of the general areas of neuroscience including courses in cellular/molecular, systems, and integrative/cognitive neuroscience. This course work is supplemented with exposure to the laboratory techniques utilized in neuroscience research. Finally, the program allows students to pursue more work in the specific sub-disciplines of neuroscience and in areas of inquiry related to neuroscience through elective courses. Students are especially encouraged to participate in research in the laboratories of neuroscience faculty under the auspices of the undergraduate research courses. More extensive research experience is available through the Honors Program in Neuroscience. For additional information, see as.vanderbilt.edu/neuroscience.

Program of Concentration

The neuroscience major consists of 38 credit hours of course work that includes 8 credit hours of organic chemistry and 30 credit hours of neuroscience and related courses distributed among specific disciplines associated with the study of neuroscience. Students majoring in neuroscience are additionally required to complete a core of introductory courses in mathematics, statistics or computer science, biology and physics that provide the broad scientific background necessary to the study of neuroscience. The areas and associated course options are listed below. Excluding research credit (3861, 3862, 3863, 3864, and 4999), the neuroscience and related courses must be drawn from at least two departments or programs.

Students seeking a second major within the College of Arts and Science may count a maximum of 6 credit hours of 2000-or-higher-level course work to meet the requirements of both majors.

Required Math and Science Courses

Biological Sciences (8 credit hours)

BSCI 1510, 1511, 1510L, and either 1511L or 1512L.

Chemistry (8 credit hours)

CHEM 2211 or 2221; CHEM 2212 or 2222; and CHEM 2221L and 2222L.

Mathematics, Statistics, Computer Science (6–8 credit hours)

MATH 1100, 1200, or 1300; and one of MATH 1201, 1301, BSCI 3270, PSY 2100, PSY-PC 2110, CS 1101, 1103, or 1104.

Physics (8 credit hours)

PHYS 1501, 1601 or 2051; PHYS 1502, 1602 or 2053; PHYS 1501L, 1601L or 2052; and PHYS 1502L, 1602L, or 2054.

Neuroscience Courses

Introduction to Neuroscience (3 credit hours)

NSC 2201.

Cellular and Molecular Neuroscience (6 credit hours)

BSCI 3252, 3256; NSC 3235, 3240, 3245, 3260, 3269, 3891; PSY 3630.

Systems, Integrative, and Cognitive Neuroscience (6 credit hours)

BSCI 3230, 3254; NSC 3270, 3274, 3892, 4961, 4969; PSY 3120, 3620, 3700, 3730, 3750, 3760, 3765, 3775, 3780, 3785, 3892; PSY-PC 3190.

Neuroscience Laboratory (6 credit hours)

NSC 3861, 3862.

Neuroscience Electives (6 credit hours)

Two additional courses from the Cellular and Molecular Neuroscience and/or Systems, Integrative, and Cognitive Neuroscience courses listed above. NSC 3863 or NSC 4999 may be used to count for one elective course.

Related Course Electives

(3 credit hours; one course not used to satisfy the Required Math and Science course requirement above.)

BSCI 2201, 2201L, 2210, 2210L, 2520, 3270, 4265; BME 3100, 3101; CHEM 2100, 3310, 3710, 4720; CS 1101 or 1103 or 1104; MATH 2300, 2400 or 2420; PHIL 3616, 3630; PSY 2100, 3100, 3600, 3625, 3705, 3715, 3810.

Honors Program

Superior students with a strong interest in research are encouraged to consider the Honors Program in Neuroscience. Normally a student will apply to enter the Honors Program in the second semester of the junior year and assemble an Honors Committee that will consist of the research mentor and at least two other appropriate members of the faculty. Entrance into and satisfactory completion of the Honors Program requires that students maintain a cumulative grade point average of 3.3 and a grade point average of 3.3 in courses counting toward the neuroscience major. Honors candidates must meet all the normal requirements for the neuroscience major, but are expected to complete at least 6 hours of advanced research course work (from NSC 3863, 3864 and 4999). Three of these research-credit hours may count toward neuroscience elective course work. As part of this research course work, the candidate will be expected to write an honors thesis, present the thesis during the final semester in residence, and satisfactorily pass an oral examination by the student's Honors Committee. Students interested in becoming honors candidates should consult with the director of honors. For more information on the Honors Program, please see as.vanderbilt.edu/neuroscience/the-honors-program.

Minor in Neuroscience

This program provides a foundation of knowledge in neuroscience that is appropriate for students majoring in a related discipline or who have a general interest in the nervous system. As prerequisites, students are required to complete CHEM 1601 and 1601L, BSCI 1510 –1511, 1510L, and either 1511L or 1512L. The minor program consists of 18 credit hours of course work distributed as follows:

NSC 2201.

3 credit hours in Statistics/Computer Science: BSCI 3270, PSY 2100, PSY-PC 2110, CS 1101, 1103, or 1104.

6 credit hours chosen from the courses listed as "Cellular and Molecular Neuroscience."

6 credit hours chosen from the courses listed as “Systems, Integrative and Cognitive Neuroscience.”

The chosen courses counting towards the 18 credit hours must come from at least 3 different departments or programs (e.g. NSC, PSY, and BSCI).

Research courses (NSC 3860, 3861, 3862, 3863, 3864, and 4999) do not count towards the minor.

Peabody College Administration and Faculty

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XIU CHEN CRAVENS, Ph.D., Associate Dean for International Affairs

ELLEN GOLDRING, Ph.D., Executive Associate Dean

CATHERINE GAVIN LOSS, Ph.D., Senior Associate Dean for Academic Affairs and Professional Education

JEANNETTE MANCILLA-MARTINEZ, Ed.D., Associate Dean for Graduate Education

JACCI L. RODGERS, Ph.D., Associate Dean for Data Analytics

SHARON L. SHIELDS, Ph.D., Senior Associate Dean for Community and Special Projects

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HASINA MOYHUDDIN, Ph.D. Assistant Dean, Equity, Diversity and Inclusion

SCOTT GUBALA, M.A., Assistant to the Dean

Endowed Chairs and Named Professorships

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Patricia and Rodes Hart Professor of Educational Neuroscience

Patricia and Rodes Hart Professor of Psychology and Human Development

Patricia and Rodes Hart Professor of Educational Leadership and Policy

Frank W. Mayborn Professor

Dunn Family Chair in Educational and Psychological Assessment, Special Education

Currey-Ingram Chair in Special Education

Nicholas Hobbs Chair in Special Education

Betts Professor of Education and Human Development

Antonio M. and Anita S. Gotto Chair in Teaching and Learning

Margaret Cowan Chair in Teacher Education

Susan Gray Chair in Education and Human Development

Cornelius Vanderbilt Chair

Faculty Council

peabody.vanderbilt.edu/faculty/faculty-research/faculty_council.php

Council on Teacher Education

Camilla P. Benbow, Chair.

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

Peabody College Courses

Human and Organizational Development

Community Development and Leadership

Education Policy

Health and Human Services

International Leadership and Policy

Leadership and Organizational Effectiveness

Psychology and Human Development

Special Education

Special Education - Interventionist/High Incidence/Modified

Special Education - Severe/Comprehensive

Special Education - Vision

Teaching and Learning

Education

English Education

Foreign Language Education

Humanities Education

Math Education

Science Education

Social Studies Education

Peabody Honors Scholars

Military Science - Peabody

Naval Science - Peabody

Philosophy

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DIRECTOR OF GRADUATE STUDIES Scott Aikin

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PROFESSORS Lenn E. Goodman, Michael P. Hodges, Kelly Oliver, Lucius T. Outlaw Jr., Robert Talisse, Paul C. Taylor

ASSOCIATE PROFESSORS Scott Aikin, Karen Ng, Idit Dobbs-Weinstein, Julian Wuerth

ASSISTANT PROFESSORS Matthew Congdon, Emanuele Costa, Diana Heney

SENIOR LECTURER, EMERITUS Russell M. McIntire

SENIOR LECTURERS Andrew Sucre

LECTURERS Alyssa Lowery, Lyn Radke, Brandon Underwood

COURSES OFFERED: PHIL

The Department of Philosophy at Vanderbilt offers a wide range of courses relating philosophy to various dimensions of human concern.

The department emphasizes three broad areas of scholarly and teaching excellence: ethics, social and political philosophy, and the history of philosophy.

Program of Concentration in Philosophy

The program of concentration should be tailored to the needs and interests of the student. The following distribution of courses is required as part of the major. Logic: 1003 or 3003 (at least 3 credit hours); Ethics: 1005, 3605, 3606, or 3606W (at least 3 credit hours); History of Philosophy: 2100, 2101, 2102, 2103, or 2104 (at least 6 credit hours). Any alterations must be approved by the director of undergraduate studies. We encourage all majors to work closely with their advisers to select courses that form a coherent whole. The student must take at least 30 credit hours in the major field of which at least 21 credit hours must be in courses beyond the 1000 level.

Honors Program

The Honors Program offers opportunities for advanced study in philosophy, including independent research projects and/or enrollment in certain graduate seminars (with permission of the instructor). To be admitted to the program, the student must: (a) be a major in philosophy; (b) have a grade point average of 3.3 in all courses; (c) have a 3.5 grade point average in philosophy courses; and (d) develop a written proposal for advanced study in consultation with a philosophy faculty sponsor. Students who satisfy these requirements should meet with the director of undergraduate studies to review their programs, whereupon the director may nominate the students for honors work. Honors work typically begins in the junior year or in the first semester of the senior year; students in the program must complete at least 3 credit hours of Philosophy 3999. Students who successfully complete the program while maintaining the grade point averages of 3.3 generally, and 3.5 in the major, will receive honors in philosophy; students who do especially distinguished work will receive highest honors.

Minor in Philosophy

The minor in philosophy consists of 18 credit hours, including at least 12 credit hours in courses beyond the 1000 level. The minor program will be constructed so as to provide a broad grounding in philosophy and to complement the student’s other studies. Each program must be approved by the director of undergraduate studies.

Note: 1002 or 1002W or 1005 or 1111 are ordinarily taken prior to all other philosophy courses, except 1003 and 3003 (logic courses), 3616 (philosophy of science), and 3013 (aesthetics).

Physics and Astronomy

CHAIR Julia Velkovska

VICE CHAIR Kalman Varga

DIRECTOR OF UNDERGRADUATE STUDIES Robert Scherrer

DIRECTOR OF GRADUATE STUDIES (Physics) Alfredo Gurralo

DIRECTOR OF GRADUATE STUDIES (Astrophysics) Jonathan Bird

PROFESSORS EMERITI John Paul Barach, Charles A. Brau, Leonard C. Feldman, Dennis Hall, Arnold M. Heiser, P. Galen Lenhert, Charles F. Maguire, Volker E. Oberacker, Akunuri V. Ramayya, Medford S. Webster, Thomas J. Weiler, Robert A. Weller

PROFESSORS Andreas Berlind, David J. Ernst, John C. Gore, Senta V. Greene, Richard F. Haglund Jr., Joseph H. Hamilton, Kelly Holley-Bockelmann, M. Shane Hutson, Will E. Johns, Thomas W. Kephart, Sokrates T. Pantelides, James A. Patton, Robert J. Scherrer, Paul D. Sheldon, Keivan G. Stassun, Norman H. Tolk, A. Sait Umar, Kalman Varga, Julia Velkovska, David A. Weintraub, John P. Wikswo Jr.

DISTINGUISHED RESEARCH PROFESSOR C. Robert O'Dell

ASSOCIATE PROFESSORS Steven E. Csorna, Todd E. Peterson, Jason Valentine, Yaqiong Xu

ASSISTANT PROFESSORS Alfredo Gurrola, William R. Holmes, Jessie C. Runnoe, Stephen R. Taylor

ADJUNCT ASSISTANT PROFESSOR Susan G. Stewart

SENIOR LECTURERS Sourish Dutta, Erika Grundstrom, Savanna Starko, Momchil Velkovsky

LECTURER William Teets

COURSES OFFERED: ASTR, PHYS

As fundamental sciences, physics and astronomy continue to be driving intellectual forces in expanding our understanding of the universe, in discovering the scientific basis for new technologies, and in applying these technologies to research. In keeping with this crucial role, the Department of Physics and Astronomy offers courses dealing with both the cultural and intellectual aspects of the disciplines, a broadly based major program flexible enough to serve as preparation for graduate study in physics, applied physics, medical physics, astronomy or astrophysics, professional study in another area, or technical employment, and minor programs for students desiring to combine physics or astronomy with other majors. An honors program is available for qualified departmental majors.

A distinguishing feature of the Vanderbilt undergraduate curriculum is the close coupling between teaching and research. At Vanderbilt, active research groups are studying the physics of elementary particles; nuclear structure and heavy-ion reactions; nonlinear interactions of lasers with materials at ultrafast time scales; the behavior of electrons, atoms, molecules, and photons near surfaces; the electric and magnetic properties of living systems; the structure and dynamics of biopolymers; young stars; and cosmology. All professors are engaged in research, and undergraduate students can participate in this research informally or through independent study or summer work.

The Society of Physics Students arranges informal discussions.

Program of Concentration in Physics

The departmental major provides a thorough grounding in the core areas of physics. It is suitable either as preparation for careers in science and engineering or as a springboard for applying technical knowledge in such fields as business, medicine, law, public policy, and education. The major in the Department of Physics and Astronomy consists of 31–32 credit hours of course work, distributed as below. Students considering majoring in physics are strongly encouraged to consult with the director of undergraduate studies before registering for classes.

1. *Core courses covering the major subdisciplines of physics* — Students must complete four of the following (12 credit hours): Modern Physics and the Quantum World (2255); Classical Mechanics (2275); Electricity, Magnetism, and Electrodynamics I (2290); Statistical Physics (3200); Quantum Mechanics I (3651).
2. *Laboratory work* — Students may not use AP credit to satisfy any portion of the laboratory sequence requirement (3–4 credit hours):
    a. Laboratory Principles I (1912L), Laboratory Principles II (2255L), and Introduction to Experimental Research (2953L); or
    b. 1501L or 1601L, 1502L or 1602L, 2255L, and 2953L if the student has entered the major by taking the introductory physics course sequence 1501 or 1601, 1501L or 1601L, 1502 or 1602, and 1502L or 1602L. Students considering majoring in physics who begin in 1501 or 1601 and 1501L or 1601L in the fall semester are encouraged to take the combination 1502 + 1912L or 1602 + 1912L in the spring semester.
3. *Electives* (9 credit hours) — Pedagogical course work in physics and/or astronomy; research hours (3850, 3851, 4998) do not count toward this requirement. The course electives may be taken from any 2000-level or higher PHYS or ASTR courses not used to satisfy any other requirement of the major. Other courses may count as electives, such as courses offered by the engineering school (or other departments and schools) that are particularly relevant, such as a course in environmental studies, health physics, optics, or materials science. Such exceptions must be approved by the director of undergraduate studies.
4. *Capstone* (7 credit hours) — Computational Physics (3790), 3 credit hours of research (3850, 3851, or 4998) taken across one or more semesters, and the Seminar in Presenting Physics Research (3600). Physics-related research done in other departments and programs, supervised by Vanderbilt faculty and pre-approved by the director of undergraduate studies, is also permitted in satisfaction of the research requirement.

Immersion Experience: A student majoring in physics may choose to complete their Immersion Experience through an enhanced research program within the disciplines of either physics or astronomy. To complete the Immersion Experience in physics or in astronomy, physics majors must complete at least 5 credit hours of research and earn 1 credit hour from PHYS 3600 (Seminar in Presenting Physics Research) and 3 credit hours from PHYS 3790 (Computational Physics). At least 2 of these credit hours in research must be earned in either 3851 (Undergraduate Immersion Research) or 4998 (Honors Research). The other three (3) credit hours may be from any combination of 3850, 3851, and 4998. Credit hours in research may be from PHYS, from ASTR, or from a combination of PHYS and ASTR courses.

Computer Science course work: All 2000-level and higher PHYS courses assume students have working skills in programming. These skills may be learned outside of a regular course, but should be equivalent to that taught in CS 1104 Programming and Problem Solving. Students who do not already have these skills are strongly advised to take this class in the first semester, prior to beginning the three-semester laboratory sequence in the second semester. In addition, the following Computer Science and/or Scientific Computing courses are strongly recommended for all physics majors: Program Design and Data Structures (CS 2201) or Program Design and Data Structures for Scientific Computing (CS 2204); Algorithms (CS 3250) or Scientific Computing Toolbox (SC 3250); and High Performance Computing (SC 3260). Physics majors pursuing a second major or minor in computer science should take CS 2201; physics majors pursuing a minor in scientific computing should take CS 2204.

Mathematics course work: All physics majors are expected to have high-level skills in mathematics in order to be successful in PHYS classes and to prepare for graduate work. MATH courses are not formally required for the major in physics; however, most physics courses identify MATH prerequisite or co-requisite courses in order to indicate the mathematical skill-level assumed for that class. Multivariable calculus is a co-requisite for 2255 and a prerequisite for all other 2000-level or higher PHYS courses. Physics majors are expected to develop a working knowledge of single- variable calculus, multivariable calculus, and ordinary differential equations. The following courses are those strongly recommended for physics majors:

1. Accelerated Calculus I (1300) and Accelerated Calculus II (1301);
2. Multivariable Calculus (2300) or Multivariable Calculus and Linear Algebra (2500 and 2501); and
3. Methods of Ordinary Differential Equations (2420) or Ordinary Differential Equations (2610).

In addition, for physics majors considering post-graduate work in physics or in a related field, the following PHYS and MATH courses are strongly recommended as electives:

1. Electricity, Magnetism, and Electrodynamics II (PHYS 2291), Quantum Mechanics II (PHYS 3652), Mathematical Methods of Physics (PHYS 4005); and
2. Methods of Linear Algebra (MATH 2410) or Linear Algebra (MATH 2600); Introduction to Probability and Mathematical Statistics (MATH 2820); Statistics Laboratory (MATH 2820L); Complex Variables (MATH 3110); Introduction to Partial Differential Equations (MATH 3120); Fourier Analysis (MATH 3130); and Advanced Engineering Mathematics (MATH 3600).

Licensure for Teaching

Candidates for teacher licensure in physics at the secondary level may qualify by taking the basic physics major together with the requisite education courses described in the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Honors Program

The Honors Program in the Department of Physics and Astronomy is designed to allow a student to engage in advanced research under the guidance of a faculty member, usually in an area related to an ongoing research program in the department. A student majoring in physics interested in Honors (Honors in Physics or Honors in Astronomy) will work with a faculty mentor to develop an appropriate research project that will be conducted under the guidance of that faculty member. The Honors project must have a substantial grounding in physics or astronomy, but may be conducted under the direct supervision of any faculty member in any department at Vanderbilt. To be admitted to the Honors Program, a student must submit a two-page research proposal describing the plans for their Honors project, which must be approved by the director of the departmental Honors Program. In addition, a student must have completed 2953L, either 2255 or 3651, and meet the minimum GPA requirements for honors programs of the College of Arts and Science.

To graduate with honors, a student must

- Have at least a 300 cumulative GPA and a 3.300 GPA in courses that count toward the major.
- Earn a minimum of 6 credit hours in research classes (3850, 3851, 4998), leading to an honors thesis, with at least 2 of these credit hours earned in A student who earns credit for 3852 may satisfy this portion of the requirement with 3 credit hours of research earned at Vanderbilt, including at least 2 of these credit hours in 4998.
- Write a senior thesis of high merit, as evaluated by the student’s Honors Examination Committee; the thesis may be submitted either in the fall or spring semester of the senior year.
- Demonstrate high attainment on an oral honors examination in which they present and defend their work to the student’s Honors Examination Committee; the oral examination may take place either in the fall or spring semester of the senior year.

Departmental Minors

The physics and astronomy minors are suitable for students who wish to supplement a related discipline or simply have a general interest in the field. Research is not a requirement for either minor.

Minor in Physics

The minor requires a minimum of 19 credit hours of course work, distributed as follows:

Any first-semester physics class (1501, 1601, 1911, 2051)	3-4
Any first-semester physics laboratory (1501L, 1601L, 1912L, 2052)	1
Any second-semester physics class (1502, 1602, 1912, 2053)	3-4
Any second-semester physics laboratory (1502L, 1602L, 2255L, 2054)	1
PHYS 2255 or 3651	3
6 credit hours of electives. These may be selected from any 2000-level or higher-level PHYS courses not used to satisfy the above requirements or from 3 credit hour non-PHYS courses, the latter if approved by the director of undergraduate studies, and may include up to 3 credit hours of research (3850, 3851, 4998).	6
Total credit hours:	17-19

Minor in Astronomy

The minor requires a minimum of 16 credit hours of course work, distributed as follows:

ASTR 1010 and either 1010L or 1020L; or 1210	4
ASTR 2110	3
ASTR 3000	3
Two other astronomy courses, one of which may be a 3 credit hour one-semester research project (3850, 3851, 4998). Note that only physics majors pursuing honors in astronomy are eligible to enroll in 4998.	6
Total credit hours:	16

Introductory Courses - Physics

1001, 1010, 1020,1010L, 1111, 1501, 1501L, 1502, 1502L, 1601, 1601L, 1602, 1602L, 1911, 1912, 1912L, 2255L

Introductory, calculus-based physics is offered at several different levels, each with the appropriate laboratory. Only one of 1501/1601/1911 and one of 1502/1602/1912 may be taken for credit. Physics 1501–1502/1601L–1602L is intended for students in the health sciences. Physics 1601–1602/1601L–1602L is intended for students in engineering. Physics 1911–1912 and the labs 1912L-2255L are intended for students planning to major in physics or pursue research-oriented careers in science, engineering, or mathematics; however, students may major in physics after starting in any of these three introductory physics sequences. Prospective majors are strongly advised to begin their study of physics in the fall semester of their freshman year whenever possible, although with careful planning it is possible to complete the physics major with a later start. Physics 1010 /1020 is intended for students without strong backgrounds in mathematics or science who have a general interest in the subject. 1010/1020 is not recommended as preparation for further study in a natural science, is not appropriate for engineering, premedical, or pre-dental students, and does not count toward the physics major or minor.

Intermediate Courses - Physics

2210, 2255, 2275, 2290, 2660, 2953L, 3122, 3200, 3600

The intermediate-level courses cover the major subdisciplines of classical and modern physics.

Advanced Courses - Physics

2291, 3640, 3651, 3652, 3660, 3790, 3850, 3851, 3890, 4998

These courses are intended for physics majors in their junior and senior year and provide material supporting independent study or honors projects in physics.

Medical and Health Physics Courses

3125, 3645

Physics Education Courses

3820

Introductory Courses - Astronomy

1001, 1010, 1010L, 1020L, 1111, 1210

Intermediate Courses - Astronomy

2110, 2130, 2150, 3000

Advanced Courses - Astronomy

3600, 3700, 3800, 3850, 3851, 3900, 4998

Political Economy

THE Political Economy (PECN) minor is a program that is jointly situated between the Departments of Economics and Political Science that provides students with the opportunity to engage with the economic analysis of political institutions and behavior, as well as the analysis of the political consequences of economic decisions, policies, and outcomes. Students who minor in Political Economy will acquire a common foundation in tools of microeconomic theory and game theory, and they will take substantive and methodological coursework to build on these common analytical foundations to develop expertise in a broad range of topics in political science, economics, and public policy.

Minor in Political Economy

This interdisciplinary minor requires 18 credit hours divided into two parts: 6 credit hours of required core courses and 12 credit hours of elective courses, where at least three credit hours of elective courses have to be completed in Political Science and Economics.

Prerequisites

Students declaring a minor in Political Economy are required to complete either Economics 3012 or Political Science 2259.

1. *Core Courses (6 credit hours)*
2. Economics 4230/Political Science 3400, Political Economy of Elections
3. Economics 4240, Political Science 3401, Political Economy of Institutions and Development
4. *Electives (12 credit hours)*

Students are required to complete at least four electives from the following list of courses, where at least one course must be taken in each of the Departments of Economics and Political Science: ECON 2890, ECON 3032, ECON 3035, ECON 3110, ECON 3200, ECON 4220, ECON 4260, ECON 4540, PSCI 2211, PSCI 2221, PSCI 2225, PSCI 2226, PSCI 2228W, PSCI 2259, PSCI 2274, PSCI 2300, PSCI 3252, PSCI 3259.

Student Advising

Students who declare a minor in Political Economy will be advised by one of the affiliated faculty, where the assignment of advisor will depend on whether the student took the required prerequisite for the minor in the Economics department or the Political Science department. If a student completes her prerequisite by completing Economics 3012, she will be advised by an affiliated faculty member in the Economics Department, and if she completes her prerequisite by taking Political Science 2259, she will be advised by an affiliated faculty member in the Political Science Department.

Political Science

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VICE CHAIR Jonathan T. Hiskey

DIRECTOR OF UNDERGRADUATE STUDIES Jonathan T. Hiskey

DIRECTOR OF GRADUATE STUDIES Sharece Thrower

PROFESSORS EMERITI W. James Booth, Bruce I. Oppenheimer, Richard A. Pride, James Lee Ray, Mitchell A. Seligson, Nicholas S. Zeppos

VISITING DISTINGUISHED PROFESSOR Jon Meacham

PROFESSORS Brooke A. Ackerly, Larry M. Bartels, Robert Barsky, Joshua D. Clinton, Daniel Cornfield, Daniel Diermeier, John G. Geer, Tracey George, Jason Grissom, Jonathan T. Hiskey, Sarah Igo, Cindy D. Kam, David E. Lewis, Michael A. Newton, Matthias Polborn, Edward Rubin, Thomas Schwartz, John Sides, Robert Talisse, Jessica Trounstine, Alan E. Wiseman, Elizabeth J. Zechmeister

PROFESSOR OF THE PRACTICE Michael Newton

ASSOCIATE PROFESSORS Brett V. Benson, Katherine B. Carroll, Brenton Kenkel, Jennifer M. Larson, Noam Lupu, Emily Hencken Ritter, Sharece Thrower, Shatema Threadcraft

ASSISTANT PROFESSORS Allison Anoll, Abhit Bhandari, Peter Bils, , Andrew J. Coe, John Dearborn, Alex Dubilet, Cassy Dorff, J. Andrés Gannon, Christopher Li, Jorge Mangonnet, Nina McMurry, Leah Rosenstiel, Peter Schram, Bradley C. Smith, Georgiy Syunyaev, Roya Talibova, Maria (Masha) Titova, Erin York

RESEARCH PROFESSORS Samar S. Ali

RESEARCH ASSISTANT PROFESSORS Eli Merritt, J. Gray Sasser

PRINCIPAL SENIOR LECTURERS Carrie A. Russell

COURSES OFFERED: PSCI

The Department of Political Science is oriented toward both teaching and research and has multiple missions. First, it offers a balanced curriculum for undergraduates and graduate students to study the art and science of politics. Second, it offers training for students preparing to become professionals in political science and other fields. Third, it exists as a research faculty seeking new knowledge about government and politics.

Many members of the faculty have national and international reputations in their fields of scholarship. These research and teaching interests vary widely, from political leadership to the comparison of new and old democratic governments, issues of political economy, and ethical questions about politics.

Political science majors may participate in independent study, directed study, selected topics seminars, first-year seminars, the Honors Program, and internships. Average class size is close to thirty—small classes make personal contact with the faculty relatively easy. Students participate in the governance of the department

through the Undergraduate Political Science Association, and may qualify for membership in Pi Sigma Alpha, the national political science honorary society.

Program of Concentration in Political Science

Students majoring in political science are required to complete a minimum of 30 credit hours of work, distributed as follows:

Major Concentration	**Hours**
Political Science Core 1100, 1101, 1102, 1103, or 1150	6
Political Science Subfields	12 (3 hours from 4 different subfields)
**American Government and Politics subfield* (2204W, 2222, 2235, 2240, 2240W, 2241, 2242W, 2243, 2244, 2245, 2251, 2253, 2255, 2256, 2259, 2262, 2265, 2266, 2267, 2270, 3241, 3242, 3244, 3246, 3247, 3249, 3250, 3252, 3253, 3254, 3260, 3268, 3700W, 3893, 4444)	
**Comparative Politics subfield* (2210, 2212W, 2213, 2214, 2215, 2216, 2217, 2219, 2223, 2224W, 2228W, 2230, 2231, 2236, 2237, 2238, 2239, 2246W, 2249, 2251, 2252, 2254W, 2270, 2278, 2400W, 2405W, 3211, 3217, 3218, 3219, 3228, 3235, 3272W, 3273, 3273W, 3274, 3400, 3894, 4238)	
**International Relations subfield* (2170, 2171, 2211, 2220, 2221, 2222, 2223, 2225, 2226, 2236, 2263, 2270, 2273, 2274, 2275, 2405W, 3211, 3228, 3229, 3272W, 3273, 3273W, 3275, 3895, 4277)	
**Political Theory subfield* (2201, 2202, 2203, 2204W, 2205, 2207, 2207W, 2208, 2209, 2263, 3206, 3253, 3258, 3264W, 3265, 3266, 3270, 3271, 3333, 3896, 4257)	
**Research Methods subfield (2170, 2171, 2259, 2270, 2279, 2300, 2310, 3273, 3273W)*	
Electives (Any 2000, 3000, or 4000-level course listed above; 2270, 2279, 2300, 2130, 3891, 3897; one additional 1100-level course, including 1111; up to 6 credit hours of 3841, 3842, 3851, 3852, 3880, 3882, 3882, 3883, 4998, 4999 *combined)*	12
Minimum 30 credit hours total	

In order to graduate with a political science major, students must take a brief exam within the major concentration in which they are most interested during their senior year. Students are to take this exam online in the fall or spring of their senior year. The exam is not graded, and no grade will appear on the student's transcript. The purpose of the exam is to ascertain the extent to which political science majors are retaining core aspects of the political science curriculum.

Students desiring an emphasis on African American politics within their program of concentration should consider courses in the following group: 2240, 2255, 2265, 2266. They may also choose to elect the following courses at Fisk University: Political Science 245 (Afro-American Political Thought), 254 (Politics in the Black Community), and 406 (African Political Systems).

Graduate Courses. Qualified undergraduates may enroll in graduate courses with the consent of their adviser, the course instructor, and the Graduate School. To enroll in graduate courses, undergraduate applicants need to

comply with rules provided under the heading Undergraduate Enrollment in Graduate Courses in this catalog.

Honors Program

To enter the Honors Program, students should have completed all but 6 credit hours of the AXLE requirements, and have a minimum overall GPA of 3.6. They should also have a minimum GPA of 3.6 in all the political science courses they have taken up to the point at which they enter the Honors Program. They must have exhibited to the department additional evidence of an ability to do independent work. Finally, they must be nominated by the director of the undergraduate studies program.

In addition to requirements set by the College of Arts and Science, the following requirements must be met in order for honors in political science to be awarded:

1. 30 credit hours in political science, as well as all of the requirements for political science majors.
2. 6 grade point average in all political science courses, and a 3.6 average in courses that count toward honors in political science.
3. Completion of an honors thesis under the direction of a faculty adviser. Students will enroll in Senior Honors Research (4998 and 4999) during the semesters when they work on the honors thesis (at least 3 credit hours each).
4. An oral defense of the honors thesis in the last semester of the senior year.

Students in the Honors Program are encouraged to take PSCI 2270 before they enter or during their first semester in the Honors Program.

Students will complete the thesis under the direction of a faculty adviser. Instructions for applying to the Honors Program can be found on the Political Science webpage. The student will complete the oral defense in the department, after which it will be determined whether the student will receive honors or highest honors. *Successful candidates are awarded honors or highest honors in their field and this designation appears in the Commencement program and on their diplomas.*

Minors in Political Science

The Department of Political Science offers three minor concentrations, which are detailed below. Each consists of 18 credit hours (one introductory-level course and five upper-level courses). One of these options may be chosen:

Minor Concentration	Hours
American Politics 1100 or 1150	3
Any five of the following: 2204W, 2222, 2235, 2240, 2240W, 2241, 2242W, 2243, 2244, 2245, 2251, 2253, 2255, 2256, 2259, 2262, 2265, 2266, 2267, 2270, 3241, 3242, 3244, 3246, 3247, 3249, 3250, 3252, 3253, 3254, 3260, 3268, 3700W, 3893, 4444	15
Political Theory 1103	3
Any five of the following: 2201, 2202, 2203, 2204W, 2205, 2207, 2207W, 2208, 2209, 2263, 3206, 3253, 3258, 3264W, 3265, 3266, 3270, 3271, 3333, 3896, 4257	15
World Politics A student may stress comparative politics or international relations or may mix the two in this minor. 1101 or 1102	3
Any five of the following: 2170, 2171, 2210, 2211, 2212W, 2213, 2214, 2215, 2216, 2217, 2219, 2220, 2221, 2222, 2223, 2224W, 2225, 2226, 2228W, 2230, 2231, 2236, 2237, 2238, 2239, 2246W, 2249, 2251, 2252, 2254W, 2263, 2270, 2273, 2274, 2275, 2278, 2400W, 2405W, 3211, 3217, 3218, 3219, 3228, 3229, 3235, 3272W, 3273, 3273W, 3274, 3475, 3400, 3894, 3895, 4238, 4277	15

Licensure for Teaching

Candidates for teacher licensure in political science at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Psychology

CHAIR Thomas J. Palmeri

DIRECTOR OF UNDERGRADUATE STUDIES Adriane E. Seiffert

DIRECTOR OF GRADUATE STUDIES René Marois

DIRECTOR OF CLINICAL TRAINING Bunmi O. Olatunji

PROFESSORS EMERITI Thomas Burish, William F. Caul, Keith N. Clayton, Ford F. Ebner, Jeffery J. Franks, Joseph S. Lappin, Richard C. McCarty, William P. Smith, Andrew J. Tomarken

PROFESSORS Randolph Blake, Isabel Gauthier, Steven D. Hollon, Jon H. Kaas, Gordon D. Logan, René Marois, Timothy P. McNamara, Bunmi O. Olatunji, Thomas J. Palmeri, Sohee Park, Frank Tong, Mark Wallace, Thilo Womelsdorf, Geoffrey Woodman

ASSOCIATE PROFESSORS Jo-Anne Bachorowski, Suzana Herculano-Houzel, Kari Hoffman, Alexander Maier, Sean Polyn, David G. Schlundt

ASSISTANT PROFESSORS André Bastos, Antonia Kaczkurkin, Jonathan Schaefer, Ashley Watts

PRINCIPAL SENIOR LECTURER Adriane E. Seiffert

SENIOR LECTURERS Ashleigh M. Maxcey, Elisabeth H. Sandberg

COURSES OFFERED: PSY

Psychology is the scientific study of brain, behavior, and cognitive processes. At Vanderbilt, the undergraduate program introduces students to the major areas of contemporary psychology: clinical science, human cognition and cognitive neuroscience, developmental psychology, neuroscience, and social psychology. Clinical science studies human personality, emotion, abnormal behavior, and therapeutic treatments. Human cognition and cognitive neuroscience are the study of processes such as learning, remembering, perceiving objects and events, and neural mechanisms underlying these processes. Developmental psychology examines human development from conception through adulthood, including cognitive, emotional, physical, and social aspects. Neuroscience studies the structure and function of the brain and how nerve cells process sensory information, mediate decisions, and control motor actions. Social psychology examines interpersonal and intergroup relations and the influence of social conditions on cognitive, emotional, and behavioral processes.

The Department of Psychology offers a general program of study for students who desire a broad background in contemporary psychology, as well as an honors program. The department offers a wide variety of opportunities for undergraduates to gain research experience through active participation in faculty research projects. Such research experience is considered a fundamental aspect of education in psychological science.

Programs of Concentration in Psychology

General Program

PSY 1200

PSY 2100 or PSY-PC 2110 (Peabody)

PSY 2150

4 Distribution Courses*

5 Psychology Electives**

Total credit hours: 36

Honors Program

PSY 1200

PSY 2100 or PSY-PC 2110 (Peabody)

PSY 2150

4 Distribution Courses*

2 or all 3 of PSY 3980, 3981, and 4998

PSY 4999

3 Psychology Electives

Students who only take two semesters of PSY 3980, 3981, and 4998 will need to take an additional elective course to fulfill their 42 credit hours.

Total credit hours: 42

Honors Program

The Honors Program offers qualified majors the opportunity to conduct research projects in collaboration with faculty members. This research culminates in the writing and public presentation of a senior thesis.

The Honors Program offers unusual opportunities for interested and qualified students, including special seminars and individual research projects. The program should substantially aid those intending to do graduate work.

The program requires three or four semesters of honors research and participation in the Honors Seminars, which are PSY 3980, 3981, 4998, and 4999. (Students must have at least 9 credit hours total, with mandatory enrollment in PSY 4999). Students may enroll in the three-semester options of the Honors Program—provided they can complete the research project by extra work during three regular semesters and/or a summer, and provided this arrangement is acceptable to the faculty mentor and to the director of the Honors Program. Students who take the three-semester option will need to take an additional PSY elective course to fulfill their 42 credit hours.

Students who are majoring in psychology should apply to the Honors Program at the end of their sophomore year.

Applicants are required to have a cumulative grade point average of at least 3.3, both overall and in all courses that count toward the psychology major. Students must also find a faculty mentor who is willing to sponsor them in the program. Students who intend to apply the three-semester option should identify a faculty mentor and obtain permission for the option at the end of their sophomore year, but are not required to apply to the program until the end of the first term of their junior year. Students who complete the program successfully and have a final cumulative and major grade point average of 3.3 or higher will receive honors or highest honors in psychology.

*Distribution Courses

(at least 4 of the following 6 courses are required)

The following courses provide grounding in core content areas of psychological science.

PSY 3100, 3110, 3120, 3750; NSC 2201; PSY-PC 1250 (Peabody)

** Electives

Any course in the Department of Psychology (A&S) or the Department of Psychology and Human Development (Peabody) that is not being used to meet another psychology requirement can be used as an elective, unless otherwise stated in the course catalog.

Comprehensive Exam

In order to graduate with a psychology major, students must take a comprehensive exam during their senior year. Students are expected to take the comprehensive exam at the beginning of their last semester, typically spring semester of their senior year. The exam is not graded, and no grade will appear on the student’s transcript. The purpose of the exam is to assess the extent to which psychology majors are retaining core aspects of the psychology curriculum.

Minor in Psychology

The minor in psychology is intended for those students who want to gain an overview of the science of

psychology and its methodological foundations, and to sample more advanced work in the areas of specialization within psychology at Vanderbilt.

Students are required to complete 18 credit hours of course work inside the department, distributed as follows:

PSY 1200

PSY 2100 or PSY-PC 2110 (Peabody)

PSY 2150

2 courses from the list of Distribution Courses specified for the major

1 Psychology Elective as defined in the psychology major

Total credit hours: 18

Independent/Directed Study courses (3850 and 3840/3860) may not be counted as the elective course for minors.

1200 (or 1111, sections 1, 2, and 3) is prerequisite for all other psychology courses except 1111. PSY 1111 – 01, 02, 03 – General Psychology, First-Year Writing Seminar – covers the same material as PSY 1200 and also serves as the introductory prerequisite for all 2000-level courses in psychology. Credit cannot be earned for both PSY 1200 and PSY 1111 – 01, 02, or 03. PSY 1111– sections 4 and higher – are First-Year Writing Seminars on special topics in psychology. PSY1111 – sections 4 and higher – do not replace PSY 1200 as a prerequisite for all 2000-level courses in psychology and may be taken in conjunction with PSY 1200.

Note: NSC courses 2201 (Neuroscience), 3235 (Biological Basis of Mental Disorders), 3269 (Developmental Neuroscience), 3270 (Computational Neuroscience), 3272 (Structure and Function of the Cerebral Cortex), and 3274 (Neuroanatomy) count as courses in the Department of Psychology (A&S). See the Neuroscience course listings for descriptions of these classes.

Psychology and Human Development (Peabody)

Majors in Child Development, Child Studies, and Cognitive Studies

CHAIR Megan Saylor

ASSOCIATE CHAIR Kristopher Preacher

DIRECTOR OF GRADUATE STUDIES David Cole

DIRECTOR OF UNDERGRADUATE STUDIES Leigh Scheer

Major in Child Development

The child development major is designed for students who wish to study children (infancy through adolescence) and the family, cultural, peer, school, and neighborhood contexts in which they live. The major is designed to provide a strong background in the social and behavioral sciences related to child development, a focused understanding of the scientific study of children and the contexts in which they develop, and opportunities for supervised and independent research on aspects of child development in ways that enable students to link theories and prior research to research design and data on children’s development. The major is excellent preparation for graduate study in selected social science and professional fields (e.g., psychology, medicine, nursing, education, public policy) and offers an excellent complementary (or second) major for undergraduate students simultaneously pursuing a major in cognitive studies, elementary education, human and organizational development, or special education.

The child development curriculum is designed to ensure that students develop a background in the liberal arts and sciences; a clear understanding of the theories, major research findings, and research methods central to the field of child development; and an area of focus or expertise in child development. Development of background in the liberal arts and sciences occurs within the context of the Liberal Education Core, composed of required and elective courses in communications, humanities, mathematics, natural sciences, and social sciences. A clear understanding of theory and research central to the field is developed through the major core courses. These include an overview of child development, courses focused on the domains of psychological processes central to human development (cognition; social and personality development), courses related to major epochs of child development (infancy and adolescence), and courses devoted to the major research methodologies in the field (experimental, observational, psychometric). Students select an area of concentration (major elective area) to complement the field as a whole.

Honors Program

The Honors Program in child development offers qualified majors the opportunity to conduct individual research projects in collaboration with faculty members. This research experience culminates in the writing and public presentation of a senior thesis. Students who major in child development are eligible to apply for the Honors Program at the end of their sophomore year if they have an overall grade point average of at least 3.2 and at least a 3.2 in child development courses.

Students who complete the program successfully and who have a final grade point average of at least 3.2 will receive Honors or Highest Honors in child development. The program should substantially aid those intending to do graduate work. More specific information concerning admission to and the requirements of the Honors Program is available from the director of the Honors Program, the director of undergraduate studies, or the department education coordinator.

Curriculum

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 40 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (http://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

A score of 5 on the AP Statistics exam will waive students from the Statistics Liberal Education Core requirement (applied to all PSYHD majors). A score of 5 on the AP Statistics exam will serve as a pre-requisite in all places that PSY-PC 2110 currently serves as a pre-requisite.

Writing Requirement

See the "Writing Requirement" section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Major Requirements. 30 hours.

Students take a minimum of 30 hours in child development. The core consists of seven courses (21 hours) in developmental areas, epochs, and methods, and a minimum of three additional courses (9 hours) in an elective

area of specialization.

Major Core. 21 hours.

PSY-PC 1250. Developmental Psychology

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2400. Social and Personality Development

PSY-PC 2120. Statistical Analysis One of the following two courses:

PSY-PC 2500. Infancy

PSY-PC 2550. Adolescent Development

Two of the following courses:

PSY-PC 2170. Experimental Methods, or

PSY-PC 2150. Principles of Experimental Design

PSY-PC 3722. Psychometric Methods

PSY-PC 3724. Psychometrics

PSY-PC 3220. Pediatric Research Design

PSY-PC 3860, 3980, 3981, 4998, 4999; PSY 3840, 3980, 4998, 4999. Directed Research or Honors Research (Only 3 hours of either Directed Research or Honors Research can be applied to this requirement.)

Major Elective Area. A minimum of 9 hours.

Any course in the Department of Psychology and Human Development (Peabody) or the Department of Psychology (A&S) that is not being used to meet another psychology requirement can be used as an elective (except, PSY 1200, PSY 2100, PSY-PC 1205/1207, 2110, 3870).

Additionally, the following courses may serve as electives. With the approval of the adviser, program director, or director of undergraduate studies, other courses may also be used as part of the child development elective area.

EDUC 3120. Children in Families and Schools

EDUC 3140. Learning and Development in Early Childhood Education

ENED 2430. Fostering Language in Classrooms

ENED 2100. Literature and Drama for Young Children

ENED 2200. Exploring Literature for Children

HODC 3232. Ethics for Human Development Professionals

HODC 3342. Introduction to Community Psychology

NSC 2201. Neuroscience

NSC 3269. Developmental Neuroscience

PHIL 3617. Philosophy of Language

PSY-PC 3850.* Independent Study

PSY-PC 3860.* Directed Research

PSY-PC 3980 or Psychology 3980, 3981, 4998, 4999* Honors Research

SPED 2120. Family Interventions

SPED 2160. Cultural Diversity in American Education

SPED 2310. Managing Academic and Social Behavior

SPEDH 3348. Language and Learning

SPEDS 2430. Introduction to Language and Communication

NOTE: Research/experiential courses marked * above may be repeated freely for elective credit toward graduation. However, only a total of 6 hours from among these courses, in any combination, may be used as elective credit within the major.

Second Major or Electives. 50 hours (or less if additional hours are earned in the Liberal Education Core, Major Core, or Major Elective Area).

Major in Child Studies

Peabody has long had great strength in the area of child studies. The 36-hour interdisciplinary major in child studies draws on courses from psychology, education, special education, and human and organizational development. The major is excellent pre-professional preparation for students interested in graduate school in psychology or education, in law (e.g., child and family advocacy), or in various health related areas (e.g., medicine, nursing) involving children. It is also appropriate for students who are interested in gaining a broader understanding of children and families in contemporary society. The major areas covered are: developmental psychology; learning; research methods; language and literacy; and families, community, and diversity.

Honors Program

The Honors Program in child studies offers qualified majors the opportunity to conduct individual research projects in collaboration with faculty members. This research experience culminates in the writing and public presentation of a senior thesis. Students who major in child studies are eligible to apply for the Honors Program at the end of their sophomore year if they have an overall grade point average of at least 3.2 and a 3.2 in child studies courses. Students who complete the program successfully and who have a final grade point average of at least 3.2 will receive Honors or Highest Honors in child studies. The program should substantially aid those intending to do graduate work. More specific information concerning admission to and the requirements of the Honors Program is available from the director of the Honors Program, the director of undergraduate studies, or the department education coordinator.

Curriculum

Students take a minimum of 120 hours, distributed as follows*:

Liberal Education Core Requirements. Minimum 40 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (http://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

*A score of 5 on the AP Statistics exam will waive students from the Statistics Liberal Education Core requirement (applied to all PSYHD majors). A score of 5 on the AP Statistics exam will serve as a pre-requisite in all places that 2110 currently serves as a pre-requisite.

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Child Studies Major Courses

DEVELOPMENT COURSES. ***(9 hours)***

PSY-PC 1250. Developmental Psychology

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2400. Social and Personality Development

PSY-PC 2500. Infancy

PSY-PC 2550. Adolescent Development

LEARNING. ***(3 hours)***

MTED 2200. Mathematics for Elementary Teaching

SCED 2200 or SSED 2100

PSY-PC 2600. Educational Psychology

SPED 2310. Managing Academic and Social Behavior

RESEARCH METHODS. ***(3 hours)***

PSY-PC 2170. Experimental Methods, or

PSY-PC 2150. Principles of Experimental Design

PSY-PC 3722. Psychometric Methods

PSY-PC 3724. Psychometrics

HOD 2500. Systematic Inquiry

FAMILIES, COMMUNITY, AND DIVERSITY. ***(6 hours)***

EDUC 1220. Society, School, and the Teacher

EDUC/SPED 2160. Cultural Diversity in American Education

EDUC 3120. Children in Families and Schools

EDUC 3620. Social and Philosophical Aspects of Education

HODH 3221. Health Service Delivery to Diverse Populations

HODC 3202. Social Problems I

HODC 3342. Introduction to Community Psychology

SPED 1210. Introduction to Exceptionality

SPED 2120. Family Intervention

LANGUAGE AND LITERACY. ***(6 hours)***

ANTH 2601. Introduction to Linguistics

EDUC 3114. Language and Literacy Learning in Young Children

EDUC 3214. Theory and Method of Reading Instruction in Elementary Schools

ENED 2430. Fostering Language in Classrooms

ENED 2100. Literature and Drama for Young Children

ENED 2200. Exploring Literature for Children

PHIL 3617. Philosophy of Language

PSY-PC 3130. Introduction to Formal Linguistics

PSY-PC 3140. Learning and Development in Early Childhood Education

PSY-PC 3150. Language Development

SPEDS 2430. Introduction to Language and Communication

SPEDH 3348. Language and Learning

ELECTIVES IN CHILD STUDIES. *(9 hours)*

Any course in the Department of Psychology and Human Development (Peabody) or the Department of Psychology (A&S) that is not being used to meet another psychology requirement can be used as an elective (except PSY 1200, PSY-PC 2100, PSY-PC 1205/1207, 2110, and 3870).

Additionally, the following courses may serve as electives. With the approval of the adviser, program director, or director of undergraduate studies, other courses may also be used as part of the child studies elective area.

ANTH 2601. Introduction to Linguistics

EDUC 1220. Society, the School, and the Teacher

EDUC 2160. Cultural Diversity in American Education

EDUC 3120. Children in Families and Schools

EDUC 3212. Introduction to Reading Processes and Assessment

EDUC 3214. Theory and Methods of Reading Instruction in Elementary Schools

EDUC 3620. Social and Philosophical Aspects of Education

ENED 2200. Exploring Literature for Children

ENED 2430. Fostering Language in Diverse Classrooms

HOD 2500. Systematic Inquiry

HODC 3342. Introduction to Community Psychology

MTED 2200. Mathematics for Elementary Teachers

PHIL 3617. Philosophy of Language

SPED 2160. Cultural Diversity in American Education

SPEDH 3348. Language and Learning

SPEDS 2430. Introduction to Language and Communication

PSY-PC 3850.* Independent Study

PSY-PC 3860.* Readings and Research for Undergraduates

PSY-PC 3980, 3981, 4998, 4999, or PSY 3980, 3981, 4998, 4999.* Honors Research

HOD 3232. Ethics for Human Development Professionals

HODC 3202. Community Development Theory

NOTE: Research/experiential courses marked * above may be repeated freely for elective credit toward graduation. However, only a total of 6 hours from among these courses, in any combination, may be used as elective credit within the major.

Major in Cognitive Studies

The cognitive studies major is designed for students who wish to become active inquirers into the processes by which people learn to think, solve problems, and reason. The major encourages the development of flexible reasoning and problem-solving skills that are useful in a wide variety of endeavors. The major is excellent preparation for graduate study in the social and behavioral sciences as well as for areas (such as medicine and law) that place importance on inquiry and clear thinking.

The curriculum is planned to ensure that students receive a strong background in both science and the liberal arts, with an emphasis on problem solving and complex decision making. The courses in the core curriculum focus on various aspects of human cognition, including communication, cognitive development, basic cognitive processes, applications of theories of knowledge, and sociocultural aspects of learning. Students are encouraged to consult their advisers about pursuing a second major or developing an area of concentration that is consistent with their career plans. The major also emphasizes an appreciation of the scientific method and the research process; numerous opportunities exist to pursue independent study in close collaboration with faculty members.

Leadership and success in our society will depend increasingly on one’s ability to process complex information, solve difficult problems using systematic analysis, and facilitate the learning of others. The knowledge and experience gained by students in cognitive studies will allow them to be full participants in the society of learners who represent the future.

Honors Program

The Honors Program in cognitive studies offers qualified majors the opportunity to conduct individual research projects in collaboration with faculty members. This research experience culminates in the writing and public presentation of a senior thesis. Students who major in cognitive studies are eligible to apply for the Honors Program at the end of their sophomore year if they have an overall grade point average of at least 3.2 and a 3.2 in cognitive studies courses. Students who complete the program successfully and who have a final grade point average of at least 3.2 will receive Honors or Highest Honors in cognitive studies. The program should substantially aid those intending to do graduate work. More specific information concerning admission to and the requirements of the Honors Program is available from the director of the Honors Program, the director of undergraduate studies, or the department education coordinator.

Curriculum

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 40 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (http://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

A score of 5 on the AP Statistics exam will waive students from the Statistics Liberal Education Core requirement (applied to all PSYHD majors). A score of 5 on the AP Statistics exam will serve as a pre-requisite in all places that 2110 currently serves as a pre-requisite.

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Major Requirements. 33 hours.

Students take a minimum of 33 hours in Cognitive Studies. The core consists of four courses (12 hours), a minimum five additional courses (15 hours) in the elective area, and two courses (6 hours) in the Methods of Inquiry area.

Major Core. 12 hours.

PSY-PC 1205 *or* 1207. Minds, Brains, Contexts, and Cultures

PSY-PC 2200. Psychology of Thinking *or* PSY-PC 3120. Cognitive Psychology

PSY-PC 3650. Advanced Topical Seminar

One of the following:

PSY-PC 2170. Experimental Methods *or* PSY 2150. Principles of Experimental Design

Methods of Inquiry. 6 hours.

May also be used to satisfy Liberal Education Core requirements

ANTH 1301, 2211

CHEM 2100

CS 1100. Applied Programming and Problem Solving with Python

CS 1101 or 2212

CS 1103 Intro to Programming for Engineer and Science

EES 2250

EES 3250

HOD 2500

HODC 3222

PHIL 1003, 3003, 3616

PSY-PC 2120, 3722, 3724

PSY 3840

PSY 3980

PSY 3981

PSY-PC 3220. Pediatric Research Design

PSY-PC or PSY 3980, 3981, 4998, 4999 (Only 3 hours from any of these courses can be applied to this requirement)

SOC 3002

SPED 2310

SPEDH 3871/SPEDS 3871

DS 1000. Data Science: How Data Shape our World

Major Elective Area. 15 hours.

Any course in the Department of Psychology and Human Development (Peabody) or the Department of Psychology (A&S) that is not being used to meet another psychology requirement can be used as an elective (except PSY-PC 1250, 2110, 3870, PSY 1200, PSY 2100).

Additionally, the following courses may serve as electives. With the approval of the adviser, program director, or director of undergraduate studies, other courses may also be used as part of the cognitive studies elective area.

ANTH 1301. Biological Anthropology

ANTH 2601. Introduction to Linguistics

ENED 2430. Fostering Language in Classrooms

EDUC 3140. Learning and Development in Early Childhood Education

NSC 2201. Neuroscience

NSC 3270. Computational Neuroscience

PHIL 3617. Philosophy of Language

PHIL 3630. Philosophy of Mind

PSY-PC 3850.* Independent Study

PSY-PC 3860, PSY 3840.* Directed Research

PSY-PC 3980, 3981, 4998, 4999, or PSY 3980, 3981, 4998, 4999.* Honors Research

SPEDS 2430. Introduction to Language and Communication

PSY 4218. Computational Cognitive Modeling

SPEDH 3348. Language and Learning

SPEDS 2430. Into Lang. & Communication

NOTE: Research/experiential courses marked * above may be repeated freely for elective credit toward graduation. However, only a total of 6 hours from among these courses, in any combination, may be used as elective credit within the major.

Second Major and Electives. 51-52 hours.

Minors The Minor in Child Development

The minor in child development consists of 18 hours in the following courses:

PSY-PC 1250. Developmental Psychology

PSY-PC 2110. Introduction to Statistical Analysis (may be taken as part of the Liberal Education Core)

One of the following:

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2400. Social and Personality Development

One of the following:

PSY-PC 2500. Infancy

PSY-PC 2550. Adolescent Development

One of the following:

PSY-PC 2170. Experimental Methods

PSY-PC 2150. Principles of Experimental Design

PSY-PC 3722. Psychometric Methods

One child development elective course

(Any of the courses above not taken to meet a minor requirement or any course listed as an elective for the child development major)

The Minor in Child Psychology and Mental Health

The minor in Child Psychology and Mental Health is offered through the Peabody Department of Psychology and Human Development. Its focus is on (a) the development of psychopathology, including depression, anxiety, and behavioral disorders, (b) evidence-based assessment and treatment of psychological disorders in children and adolescents, and (c) clinical science research methods. Given the centrality of emotional and behavioral functioning in human life, knowledge of these areas of scholarship will be useful to students interested in the behavioral sciences and education in general and is particularly relevant for those interested in clinical research careers.

Structure of the Minor

Required (Core) Courses (6 credit hours):

PSY-PC 3200 Introduction to Clinical Psychology

AND

PSY-PC 2700 Abnormal Child Psychology

Elective Courses (9 credit hours):

PSY-PC 2520 Infant and Early Childhood Mental Health

PSY-PC 3650 Developmental Disabilities

PSY-PC 3650 Clinical Interventions in Vulnerable Populations

PSY-PC 3650 Multiple Facets of Human Diversity

PSY-PC 3650 Coping with Stress

PSY-PC 3230 Play-Based Approaches to Family Stress and Coping

PSY-PC 3650 Grief and Loss

PSY-PC 3860 Directed Research (must involve work on a study or project related to clinical psychology; maximum 3 hours)

PSY 3625 Depression

PSY 3100 Abnormal Psychology

SPEDS 2120 Issues in Family Intervention

SPEDH 3308 Understanding Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3318 Assessment for Students with Severe and Persistent Academic and Behavior Difficulties

***Important:** There must be 15 unique hours for the minor that are not being used for any other major or minor.

The Minor in Cognitive Studies

The minor in cognitive studies consists of 15 hours in the following courses:

REQUIRED COURSES. *(6 hours)*

PSY-PC 1205 *or* PSY-PC 1207. Minds, Brains, Contexts, and Cultures

PSY-PC 2200. Psychology of Thinking *or* PSY 3120. Cognitive Psychology

ELECTIVE COURSES. *(9 hours)*

ANTH 2601. Introduction to Linguistics

ENED 2430. Fostering Language in the Classroom

PSY-PC 1115 or PSY-PC 1157. First-Year Seminar

PSY-PC 2250. Cognitive Aspects of Human Development

PSY-PC 2300. Social and Emotional Context of Cognition

PSY-PC 2400. Social and Personality Development

PSY-PC 3150. Language Development

PSY-PC 3650. Advanced Topical Seminar (Intended for students beyond the first year. May be repeated if no duplication of content.)

PSY-PC 3775. Human Memory

PSY-PC 3635. Health Psychology

PSY-PC 3200. Introduction to Clinical Psychology

PSY-PC 3860, 3980, 3981,4998, 4999. Directed Research/Honors Research (may *not* be repeated for minor credit)

SPEDS 2430. Introduction to Language and Communication

The Minor in Language Sciences

The minor in Language Sciences is offered through the Department of Psychology and Human Development. The emphasis is on language theory and research in the behavioral sciences. A working knowledge of the basic processes involved in speaking, understanding, and reading will be beneficial to students interested in the learning sciences. Total of 15 credit hours. Program or track requirements.

Two of the following (6 credit hours):

PSY-PC 3130: Introduction to Formal Linguistics

PSY-PC 3140: Psychology of Language

PSY-PC 3190; Language and the Brain

Three of the following (9 credit hours):

ANTH 1601: Introduction to Language and Communication

PSY-PC 3150: Language Development

PSY -PC 3160: Bilingualism

PSY-PC 3170: Cognitive Science of Reading

PSY-PC 3180: How We Talk

PSY-PC 3190: Language and the Brain

PSY-PC 3860: Directed Research - Must work on a study or project related to language sciences

SPEDH 3348: Language and Learning

SPEDS 2430: Introduction to Language and Communication

PHIL 3617: Philosophy of Language

*You may also use the additional third class from the required courses for this credit

The Minor in Quantitative Methods

Quantitative skills are highly valued in a variety of fields. Training provided by the quantitative methods minor can provide a competitive edge on the job market or for future graduate study. Many advances in quantitative methods used in the social sciences and education are not covered in standard undergraduate introductory statistics courses. This minor exposes students to more recent developments in quantitative methods with concrete applications to practice. The quantitative methods minor helps students become better consumers and producers of scientific research. Students will have the opportunity to learn from leading experts in the statistical analysis of social science data.

Structure of the Minor

Prerequisite for the minor is completion of the introductory statistics sequence that is already required by the undergraduate psychology majors. This sequence is:

PSY-PC 2110 or PSY 2100 or ECON 1500 or MATH 2810 or a 5 on AP Stat Exam

And

PSY-PC 2120. Statistical Analysis *(3 hours)*

The quantitative methods minor is an 18-hour minor. The 18 hours include both PSY-PC-2110 (or PSY 2100 or ECON 1500 or MATH 2810 or a 5 on AP Stat Exam) and PSY-PC 2120, and these serve as prerequisite courses for the electives. Following completion of these prerequisite courses (6 hours; required), the minor requires four additional courses (12 hours; electives). Any four courses offered by the Quantitative Methods program are applicable. At most, three hours of directed research/independent study can count toward the minor. Students with interest in directed research/independent study can contact individual quantitative methods faculty directly.

Courses that would satisfy the elective requirements (pick 4):

PSY-PC 3722. Psychometric Methods

PSY-PC 3724. Psychometrics

PSY-PC 3727. Modern Robust Statistical Methods

PSY-PC 3730. Applied Latent Class and Mixture Modeling

PSY-PC 3732. Latent Growth Curve Modeling

PSY-PC 3735. Correlation and Regression

PSY-PC 3738. Introduction to Item Response Theory

PSY-PC 3743. Factor Analysis

PSY-PC 3746. Multivariate Statistics

PSY-PC 3749. Applied Nonparametric Statistics

PSY-PC 3850. Independent Study

Prior to enrolling in a specific course, please contact the instructor regarding prerequisite courses. Undergraduates may request to be enrolled in QM graduate courses not yet cross-listed as undergraduate courses by using a substitution form, with permission of instructor. We anticipate adding more courses to the list of electives, which will be posted on the minor's website.

For inquiries about the quantitative methods minor, email kris.preacher@vanderbilt.edu.

Public Policy Studies

DIRECTOR Gilbert Gonzales(Medicine, Health, and Society)

ASSOCIATE DIRECTOR Katherine Carroll (Political Science)

PROFESSOR Christopher Carpenter (Economics)

ASSOCIATE PROFESSOR Gilbert Gonzales (Medicine, Health, and Society)

ASSISTANT PROFESSORS Kirsty Clark (Medicine, Health, and Society), Patrick Greiner (Sociology), Analisa Packham (Economics)

ADJUNCT PROFESSOR Bill Purcell

LECTURER Mario Rewers (American Studies)

COURSES OFFERED: PPS

Program of Concentration in Public Policy Studies

The public policy studies major has two components: the core curriculum and areas of concentration, and an optional honors program for those who qualify. Students are also required to complete several prerequisites to prepare them for the major. Students may not double count any single course for both a required part of the core and for an elective.

The proposed core is interdisciplinary and includes rigorous course work drawn from political science, economics, sociology, anthropology, and history. The core provides all PPS students training in the politics, economics, methods, social contexts, history, and ethics of public policy.

In addition to developing skills in the core curriculum, PPS students seek more intensive training within areas of concentration. The boundaries of these areas are not mutually exclusive, and together they span a wide range of policy concerns and disciplinary perspectives. Among the five elective courses, students must take three courses in a single area of concentration. It is also recommended that students choose electives from at least two disciplines.

Students pursuing the “economic policy” concentration must take at least two upper-level electives in economics from the list (numbered above 3000).

Prerequisites

PPS majors must have earned credit for MATH 1201 or 1301, or higher; basic statistics (ECON 1500 or 1510 or both MATH 2820L and either 2810 or 2820); and introductory courses in political science and economics (PSCI 1100, ECON 1010, and ECON 1020).

Core Curriculum (5 courses, 15 credit hours)

PSCI 2256 or PPS 2100	3 credit hours
ECON 3010, 3012, 3020, or 3022	3 credit hours
ECON 3032, 3035, 3050; SOC 3002; or HOD 2500	3 credit hours
PPS 2200 and 2250	6 credit hours

If a student cannot take both 2200 and 2250, they may, with prior approval from the director or associate director of Public Policy Studies, substitute one course from ANTH 3122, 3133, 4152; HIST 2722; PSCI 3253; SOC 3315, 3604, 3605, 3613, 3614.

Electives and Areas of Concentration (5 courses, 15 credit hours)

The track is intended to allow students to go more deeply into one area of public policy (for example: health policy, STEM policy, education policy, criminal justice policy). Each student is free to choose and design his or her own track with the advice and approval of the program director. Classes should generally be upper-level and should represent at least two disciplines.

General Electives

The following courses may count as PPS general electives, but they do not count toward the three electives (9 credit hours) that must be taken within a single area of concentration: PSCI 2240, 2245, 2253, 3241, 3244.

Areas of Concentration

Advanced Quantitative Methods for Public Policy

PPS 3200 or 3250; ANTH 3261; ECON 4050; HOD 3200; PSCI 2300

Economic Policy

ECON 2150, 3150, 3200, 3230, 3250, 3700, 4110, 4210, 4510/4510W, 4530/4530W; HIST 1640, 1660; HODE 3225; PSCI 2223, 3252

Social Policy

ECON 3100, 3110, 3350; HIST 1440, 1665, 2690, 2740, 2810, 3040, 3045W; MHS 2110, 3020, 3220, 3030, 3320; SOC 3223, 3304, 3611, 3616, 3621, 3622, 3701, 3711; UNIV 3320, 3325

Environmental, Resource, and Energy Policy

ANTH 2109, 2150, 3134; ECON 2170; SOC 3311, 3312, 3314, 3315, 3316, 3317, 3318

International and Foreign Policy

AMER 3200; ASIA 2560; ECON 2220, 3600, 3610, 3650, 4520; GSS (formerly WGS) 3201, 3281; HIST 1690, 1691, 1730, 1740, 2457, 2535, 2700, 2710, 2721, 2722, 2735, 2740; JS 2540; MHS 2410, 2420, 3110; PSCI 2220, 2222, 2225, 2236, 2251, 3229, 3272W, 3275

Science, Technology, and Innovation Policy

CMST 2850, 2950; CSET 3090, 3100; ECON 3270; HIST 2780, 3050, 3070W; MHS 3120; PHIL 1008, 3608; SOC 3206

Honors Track (2 additional courses, 6 additional hours)

Students who have a GPA of 3.30 or higher for all previous courses taken for credit and a GPA of 3.50 for all courses counting toward the PPS major may apply for the honors track in PPS. Students normally apply for the honors track during the second semester of their junior year. By the end of the junior year, students interested in pursuing honors should have completed all of the required core courses in the PPS major. The PPS program director may make exceptions.

Those accepted into the honors track enroll in PPS 4980 and 4999 (3 credit hours each) during the fall or spring semesters of their senior year. In addition to the honors seminar, each honors student has a faculty adviser to provide guidance on the research project and to chair the thesis committee. Successful completion of the honors program entails both the production of an original written thesis and an oral exam on the thesis project. The thesis committee evaluates both the written thesis and oral exam.

Religious Studies

CHAIR Richard McGregor

DIRECTOR OF UNDERGRADUATE STUDIES IN RELIGIOUS STUDIES Issam Eido

DIRECTOR OF UNDERGRADUATE STUDIES IN ISLAMIC STUDIES Issam Eido

DIRECTOR OF UNDERGRADUATE STUDIES IN ARABIC Issam Eido

DIRECTOR OF GRADUATE STUDIES James Byrd (Divinity)

CHAIR, GRADUATE DEPARTMENT OF RELIGION James Hudnut-Beumler (Divinity)

PROFESSORS EMERITI Lewis V. Baldwin, Volney P. Gay, Charles H. Hambrick, Daniel M. Patte, Tony K. Stewart

PROFESSORS Richard McGregor, Laurel Schneider

ASSOCIATE PROFESSOR Anand Taneja

ASSISTANT PROFESSORS Adeana McNicholl, Calynn Dowler, Ira Helderman, Issam Eido

SENIOR LECTURERS Bushra Hamad

COURSES OFFERED: ARA, RLST

Religious Studies is the critical, academic investigation of diverse spiritual traditions. Religion has always been active in human affairs for good and for ill, encompassing histories, literatures, politics, cosmologies, and medicines. Understanding the diversity of religious traditions on their own terms is vital for accuracy in approaching the world's many challenges. The faculty of Vanderbilt's Religious Studies Department and our many affiliated faculty across the university provide expertise and research in a variety of religious traditions. In addition to our expertise in specific religious cultures, texts, practices, rituals, and histories, we also share research interests and teaching focus on the religious dimensions of race and caste, colonialism, gender and sexuality, health and healing, and the climate crisis.

Students majoring in religious studies gain a deep knowledge of a single tradition, region, or theme and a broad understanding of religions around the world. Successful students develop a highly portable analytical skill set that equips them to pursue graduate degrees in religion or cognate disciplines, as well as professional degrees and careers in fields such as law, diplomacy, medicine, and business. It also provides an excellent second major for a variety of disciplines that address the human condition including neuroscience; sociology; history; medicine, health, and society; and others. Majors will gain the ability to reason intelligently about one of the most difficult and sensitive topics in any society. By virtue of the variety of religious cultures studied, the training will deepen students' mutual understanding and sensitivity to prepare them to become truly responsible global citizens.

The department offers a major (31 credit hours), an Honors Program, a minor (18 credit hours) in religious studies, a minor (20 credit hours) in Islamic studies, and a minor in Arabic language (18 credit hours). A student may pursue both the minor in Islamic studies and the minor in Arabic language.

Program of Concentration in Religious Studies

31 credit hours. The program of concentration in religious studies seeks to introduce students to the rich diversity of religious traditions in the world (*Breadth* component) and to build depth of study in areas of specific interest to the student (*Depth* component). In addition, the curriculum includes instruction in the range of theories and methods used to approach religious traditions academically (*Tools of the Discipline* component). The student will then be able to pursue individual interests (*electives*).

A maximum of two courses (6 credit hours) outside of the department may count toward the major. Of these, one course (3 credit hours) outside of the department may count toward the Depth Component. A foreign language course approved as an elective is *not* subject to the two-course (6 credit hours) limit. No course may be used to satisfy more than one of the four components of the major.

1. *Breadth Component* (9 credit hours)

Ensures a familiarity with the rich diversity of religious traditions in the world.

a. ***Encountering religious diversity.*** *3 credit hours.* RLST 1010. An introduction to the field of religious studies and select traditions.
b. **Introductory course in African or Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in the Mediterranean, Middle East, Africa, or the Americas (including but not limited to Judaism, Christianity, Islam, Egyptian religions, traditions of Sub- Saharan Africa, Native American traditions). RLST 1100, 1200, 1208, 1309, 1500. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

c. **Introductory course in Asian or non-Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in Asia or the Pacific (including but

not limited to Hindu and Buddhist traditions and those religious traditions originating in East and South Asia). RLST 1637, 1700, 1710, 2644, 2664. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

2. *Depth Component* (9 credit hours)

The Depth Component is organized according to three tracks: *traditions, geographies,* and *theories and themes.* The introductory course taken to satisfy the breadth requirement cannot be double-counted in this category. The student must choose 9 credit hours from *one* of the following tracks. An appropriate First-Year Writing Seminar RLST 1111 may count toward any track with the approval of the director of undergraduate studies in Religious Studies.

a. ***Traditions.*** Allows students to focus on a particular religious tradition or related cluster of traditions that may transcend geographic limitations.

   Buddhist Traditions: RLST 1700, 1710, 1637, 2644, 3669, 3670W, 3749, 3753; ASIA 3633

   Christian Traditions: RLST 1309, 1330W, 1820, 2250W, 2310, 3119, 3304W, 3306, 3312, 3313, 3316, 3350; CLAS 3350, 3360, 3370, 3380; HIST 1760, 2250

   Hindu Traditions: RLST 2664, 4665, 4666

   Indigenous Traditions: RLST 1637, 3178, 3890, 4774

   Islamic Traditions: RLST 1500, 2461, 3561, 4551, 4552, 4554, 4562; ARA 3301; HIST 1190, 2140, 2190

   Jewish Traditions: RLST 1208, 2210, 2210W, 3270, 3350; JS 1002*, 1002W, 1200, 2300, 2330, 2620; PHIL 2102

   (**Formerly RLST 1200. Can be taken in lieu of RLST 1200 credit.*)

b. ***Geographies.*** Gives students the option of focusing on regional cultures, histories, and religions, as well as relationships between religious traditions within a specific region.

   Africa, West Asia, and the Mediterranean: RLST 1208, 1330W, 1500, 2461, 2471, 2472, 3312, 3890, 4562; ARA 3301; HIST 1190, 2190

   The Americas: RLST 1100, 1190W, 3119, 3142, 3178, 3304; HIST 2530

   East Asia: RLST 1700, 1710, 3747, 3749, 3753, 3670W, 3775, 4774; ASIA 3633

   South/Southeast Asia: RLST 1500, 1637, 2644, 2664, 3561, 3669, 3670W, 4665, 4666

c. ***Theories and Themes.*** Enables students to focus on theoretical, scientific, or thematic questions that may cross both traditional and geographic lines.

   Religion in the literary and visual arts: RLST 2881, 2940, 3669, 3775, 4665, 4774, 4939

   Theories of religion, science, and/or psychology: RLST 1820, 2472, 3079, 3940, 3941, 4834, 4835, 4836, 4837; JS 2330; ANTH 3141; ASTR 2130

3. *Tools of the Disciple Component* (4-6 credit hours)

Key issues in the study of religion and a formal introduction to the theories and methods in the academic study of religion.

a. ***Theory and Method.*** *3 credit hours.* RLST 4960W “Approaches to the Academic Study of Religion.” Recommended for juniors, but may be taken earlier with permission of director of undergraduate studies in Religious Studies.
b. ***Majors Colloquium.*** *1 credit hour* (may be taken a total of three times). RLST 4970 “Majors Colloquium.” Initiation into the range of professional activities in the study of religion from the craft of research to the production of papers, articles, and theses, coupled with targeted theoretical concerns relevant to the research of the students enrolled in that particular class.

4. *Electives* (9 credit hours)

a. Electives may be drawn from any of the courses listed under the three components of the major (*Breadth,*

Depth, and *Tools of the Discipline*). Students may elect to deepen an area of study or they may build additional breadth in other traditions, regions, or themes.

b. One relevant language course (at least 3 credit hours) may count, with the approval of the director of undergraduate studies in Religious Studies. This course is not subject to the two-course (6 credit hours) limit on courses taken outside the department.

Honors in Religious Studies

The honors thesis provides an opportunity for highly motivated and exceptionally capable students to engage in independent work on a topic in religious studies. Honors theses require original research with primary sources and extensive use of relevant secondary scholarship, both with regard to the narrowly defined topic of the thesis and on the larger theoretical and methodological issues in the academic study of religion. 3.3 GPA in courses toward the major and cumulative 3.3 GPA are required for entry and must be maintained for completion of honors. Students work closely with faculty members in designing, researching, and writing a thesis beginning in the second semester of their junior year in order to present the thesis at the end of the second semester of their senior year, culminating in a final oral examination on the thesis.

a. ***Research and Writing.*** 6 credit hours. RLST 4998–RLST 4999 "Seniors Honors Thesis." RLST 4998 and RLST 4999 count as 6 of the 9 credit hours of the elective component of the
b. ***Majors Colloquium*** – *Co-requisite with RLST 4999.*

   RLST 4970 "Majors Colloquium" in the second semester of senior year, in which candidate must present results of research. Honor program candidates shall take 4970 co-requisite with 4999. Initiation into the range of professional activities in the study of religion from the craft of research to the production of papers, articles, and theses, coupled with targeted theoretical concerns relevant to the research of the students enrolled in that particular class.

Minor in Religious Studies

18 credit hours. The minor will introduce the rich diversity of religious traditions (*Breadth* component), initiate depth in at least one tradition (*Depth* component), and encourage further exploration of different perspectives or traditions through electives. A maximum of one course (3 credit hours) from outside the department may count if it is included in any of the three components of the major (*Breadth, Depth,* and *Tools of the Discipline*). No course may be used to satisfy more than one of the three components of the minor.

1. *Breadth Component* (9 credit hours)

Ensures a familiarity with the rich diversity of religious traditions in the world.

a. ***Encountering religious diversity.*** *3 credit hours.* RLST 1010. An introduction to the field of religious studies and select traditions.
b. **Introductory course in African or Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in the Mediterranean, Middle East, Africa, or the Americas (including but not limited to Judaism, Christianity, Islam, Egyptian religions, traditions of Sub- Saharan Africa, Native American traditions). RLST 1100, 1200, 1208, 1309, 1500. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

c. **Introductory course in Asian or non-Western traditions.**

   3 credit hours. Introductory course in a religious tradition originating in Asia or the Pacific (including but not limited to Hindu and Buddhist traditions and those religious traditions originating in East and South Asia). RLST 1637, 1700, 1710, 2644, 2664. An appropriate First-Year Writing Seminar RLST 1111 may count with the approval of the director of undergraduate studies in Religious Studies.

2. *Depth Component* (3 credit hours)

Deepening the study of one *3 credit hours.*

The student must choose one of the two religious traditions used to meet the introductory course Breadth Component to delve further into that religion.

3. *Electives* (6 credit hours)

a. Electives may be drawn from any of the courses listed under the three components of the major (Breadth, Depth, and Tools of the Discipline). Students may elect to deepen an area of study or they may build additional breadth in other traditions, regions, or themes.
b. With the permission of the director of undergraduate studies in Religious Studies and a minimum 3 GPA in the minor, the student may take the Majors Colloquium RLST 4970.

Minor in Islamic Studies

20 credit hours. Students complete a required minimum of 20 credit hours from the list below, which must include:

- ARA 1102 Elementary Arabic, and
- RLST 1500 Introduction to Islam or HIST 1190 A History of Islam, and
- RLST 4554 The Qur'an and Its Interpreters.

Both RLST 1500 and HIST 1190 may count toward the minor. Up to 8 hours of Arabic language courses may count toward the minor; however, ARA 1101 does not count toward the minor.

ARABIC: 1102, Elementary Arabic; 2201–2202, Intermediate Arabic; 3101–3102, Advanced Arabic; 3201, Media Arabic; 3301, Arabic of the Qur'an and Other Classical Texts.

CINEMA AND MEDIA ARTS: 3892, Cinema and Islam.

CLASSICAL AND MEDITERRANEAN STUDIES: 2180, Mediterranean World from Late Antiquity to the Middle Ages; 3010, The Ancient Origins of Religious Conflict in the Middle East.

HISTORY: 1111, First-Year Writing Seminar (when related to Islamic history or culture as determined by the director of undergraduate studies); 1160, Modern South Asia; 1190, A History of Islam; 1200, The Arab Spring; 1270, Sub-Saharan Africa: 1400–1800; 1280, Africa since 1800: The Revolutionary Years; 2140, The Mughal World; 2150, India and the Indian Ocean; 2155, Muhammad and Early Islam; 2160 Medicine in Islam; 2170, Islam and the Crusades; 2180, Islamic Narratives: Narratives of Islam; 2190, Last Empire of Islam; 2293, Muslims in Modern Europe; 2530, African Religions in the Americas; 3150, Cities of Europe and the Middle East; 3209, Sex, Marriage, and the Body in Islamic Law; 3210, Muslims, Christians, and Jews in Medieval Spain; 3220W Images of India.

HINDI/URDU: 1101–1102, Elementary Hindi-Urdu; 2201–2202, Intermediate Hindi-Urdu.

HISTORY OF ART AND ARCHITECTURE: 1220, History of Asian Art and Architecture, 2180, Art and Architecture of the Islamic World.

JEWISH STUDIES: 2540, Power and Diplomacy in Modern Middle East; 2600, Islam and the Jews.

PERSIAN: 1101–1102, Elementary Persian.

PHILOSOPHY: 2102, Medieval Philosophy; 3006, Islamic Philosophy.

POLITICAL SCIENCE: 1111, First-Year Writing Seminar (when related to Islamic history or culture as determined

by the director of undergraduate studies); 2203, Middle East Politics; 3235, Political Islam; 3272W, The War in Iraq 2002–2011; 3896, Selected Topics (when related to Islamic politics or culture as determined by the director of undergraduate studies).

RELIGIOUS STUDIES: 1111, First-Year Writing Seminar (when related to Islamic religion or culture as determined by the director of undergraduate studies); 1500, Introduction to Islam; 2461, Islam in Africa; 2471, Religion in Africa; 4551, Islamic Mysticism; 4552, Islam in the Modern World; 4554, The Qur'an and Its Interpreters; 4562, Culture, Religion, and Politics of the Arab World; 4666, Devotional Traditions of South Asia: Hindu, Muslim, Sikh; 4592, Advanced Seminar in Arabic; 4593, Advanced Seminar in Islamic Tradition.

TURKISH: 1101–1102, Elementary Turkish; 2201–2202, Intermediate Turkish.

Minor in Arabic Language

18 credit hours. Students complete a required minimum of 18 credit hours from the list below, following one of two tracks.

Track A "Foundations and Literature": 9 credit hours from category I, Grammar and Constructions and 9 credit hours from category II, Literature and Culture.

Track B "Full Proficiency": 12 credit hours from category I, Grammar and Constructions, and 6 credit hours from category II, Literature and Culture. No credit hours will be counted for Arabic 1101 or Arabic 1102.

CATEGORY I, Grammar and Constructions: ARA 2201, Intermediate Arabic I; 2202, Intermediate Arabic II; ARA 3101, Advanced Arabic I; 3102, Advanced Arabic II.

CATEGORY II, Literature and Culture: ARA 3201, Media Arabic; ARA 3301, Arabic of the Qur'an and Other Classical Texts; RLST 4592, Reading Seminar in Arabic Literature; RLST 4593, Reading Seminar in Islamic Tradition.

Arabic

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

If a student is pursuing the minor in Islamic Studies and the minor in Arabic language, ARA 1102 may be the only Arabic course that counts toward the minor in Islamic studies.

School of Engineering Academic Regulations

Honor System

All academic work at Vanderbilt is done under the honor system (see Life at Vanderbilt chapter).

Responsibility to Be Informed

It is the responsibility of the student to keep informed of course requirements and scheduling. Failure to do so may jeopardize graduation.

Academic Advising

A faculty adviser is appointed for each student. This adviser is chosen from the faculty in the student's major, when the major is known. For students who have not chosen a major upon entry, an adviser who specializes in helping undeclared students explore different pathways and decide upon a major is assigned. If a student later chooses a different department for their major, a corresponding change of adviser is made. Engineering students are required to see their advisers at registration and any other time changes must be made in their programs of study. Any student who has academic difficulty is expected to see their faculty adviser for counsel. Faculty advisers can also provide useful career guidance.

Professional Registration and Accreditation

Legislation exists in the various states requiring registration of all engineers who contract with the public to perform professional work. Although many engineering positions do not require professional certification, Vanderbilt supports registration and encourages its graduates to take the Fundamentals of Engineering examination as soon as they become eligible.

Bachelor of engineering degrees in biomedical engineering, chemical engineering, civil engineering, electrical and computer engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET (abet.org) as noted in more detail in the Accreditation section . Students in these programs may take the Fundamentals of Engineering examination as seniors. In addition, proven professional experience is a requirement for registration. Some state boards may have additional requirements for licensure.

Credit Hour Definition

Credit hours are semester hours; e.g., a three-hour course carries credit of three semester hours. One semester credit hour represents at least three hours of academic work per week, on average, for one semester. Academic work includes, but is not necessarily limited to, lectures, laboratory work, homework, research, class readings, independent study, internships, practica, studio work, recitals, practicing, rehearsing, and recitations. Some Vanderbilt courses may have requirements that exceed this definition. Certain courses (e.g., dissertation research, ensemble, performance instruction, and independent study) are designated as repeatable as they contain evolving or iteratively new content. These courses may be taken multiple times for credit. If a course can be repeated, the number of credits allowable per semester will be included in the course description.

Normal Course Load

Each semester, regular tuition is charged on the basis of a normal course load of 12 to 18 semester hours. No more than 18 or fewer than 12 hours may be taken in any one semester without authorization from the senior associate dean.

There is an extra charge for more than 18 hours at the current hourly rate. Students permitted to take fewer than 12 hours are placed on probation, unless their light load is necessary because of illness or outside employment and is approved by the senior associate dean. A student must be enrolled in a minimum of 12 hours to be classified as a full-time student.

Grading System

Work is graded by letter. *A, B, C,* and *D* are considered passing grades. The grade *F* signifies failure. A student who withdraws from a course before the date given in the Academic Calendar is given the grade *W*. A student may not withdraw from a course after that date.

Grade Point Average

A student's grade point average is obtained by dividing the total grade points earned by the number of hours for which the student registered, excluding courses taken for no credit, those from which the student has withdrawn, those with the temporary grade of *I* or *M*, those taken in a study abroad program, and those that are completed with the grade Pass.

Defined Grades with Corresponding Grade Points Per Credit Hour

A+	= 4.0	C+	= 2.3
A	= 4.0	C	= 2.0
A–	= 3.7	C–	= 1.7
B+	= 3.3	D+	= 1.3
B	= 3.0	D	= 1.0
B–	= 2.7	D–	= 0.7
		F	= 0.0

Pass/Fail Course Provision

Students may elect to take a limited number of courses on a Pass/Fail basis. To enroll for a course on a Pass/Fail basis, students must have completed at least two semesters at Vanderbilt, must have achieved at least sophomore standing, and must not be on academic probation.

In addition, the following regulations apply to students enrolled in the School of Engineering:

1. No more than 9 hours graded Pass will be accepted toward the B.S. or B.E. degree, as designated by each program's curriculum.

   Pass/Fail Electives Options by Program

	Open Elective	Liberal Arts Core	Technical Elective
BME	X	X	
CE	X	X	
CHE	X		
CMPE	X		
CS	X	X	X
ECE	X		
ES	X	X	
ME	X	X	X (non-ME)

2. No more than two courses may be taken on a Pass/Fail basis in any one semester.
3. A minimum of 12 hours must be taken on a graded basis in any semester that a Pass/Fail course is taken. A graduating senior who needs fewer than 12 hours to graduate may take courses on a Pass/Fail basis as long as he or she takes the number of hours needed to graduate on a graded basis.
4. Students may elect grading on a Pass/Fail basis and may change from Pass/Fail to graded status until the deadline date for withdrawing from a course that is published in the Academic Calendar.

Those electing the Pass/Fail option must meet all course requirements (e.g., reports, papers, examinations, attendance, etc.) and are graded in the normal way. Instructors are not informed of the names of students enrolled on a Pass/Fail basis. At the end of the semester, a regular grade is submitted for the student enrolled under the P/F option. Any grade of *D-* or above is converted in the Student Records System to a *P,* while an *F* will be recorded if a student enrolled under this option fails the course. The *P* grade is not counted in the grade point average or used in the determination of honors. The grade of *F* earned under the Pass/Fail option is included in the calculation of the grade point average.

Temporary Grades

Temporary grades are placeholders that are assigned under defined circumstances and are not replacements for failing grades. Missing work must be completed by the deadline specified by the instructor (usually before the end of the second week of classes of in the next regular term but no later than the end of the following semester) after which the permanent grade is recorded (either the newly assigned or default grade). The default grade is calculated by assigning zero points for work not submitted. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean’s List. An undergraduate student cannot graduate with any temporary grades on their record.

The following temporary grades are available:

I: Incomplete

To be assigned only if the following conditions apply:

1. An extenuating circumstance has emerged after the course withdrawal deadline
2. The student is up to date on all work prior to the extenuating circumstance
3. The student successfully completed at least 60% of the assigned work throughout the semester
4. The student requests the incomplete before the end of classes
5. The student has been attending a significant majority of the classes

M: Missed Final Examination or Final Evaluation

To be assigned only if the following conditions apply:

1. The student misses only the final examination or final evaluation and promptly informs the instructor as to the extenuating circumstances for missing the final exam/evaluation. In the absence of prompt notification of extenuating circumstances, a grade of zero for the final exam/evaluation is recorded.
2. The student could pass the course if the final examination is successfully completed. (The grade of F is given if the student could not pass the course even with the final examination.)

F: Failure

A subject in which the grade *F* is received must be taken again in class before credit is given. A student who deserts a course without following the correct procedure for withdrawing from it will receive an *F* in the course.

Senior Re-examination. A candidate for graduation who fails not more than one course in the final semester may be allowed one re-examination, provided the course failed prevents the student's graduation, and provided the student could pass the course by passing a re-examination. Certain courses may be excluded from re-examination. The re- examination must be requested through the student's Dean's Office, and, if approved, it is given immediately after the close of the last semester of the student's senior year. A student who passes the re-examination will receive a *D-* in the course. The terms and administration of senior re-examination are the responsibility of the school that offers the course. For engineering students, this senior re-examination policy applies if a student fails a course in the final semester or fails a course in the penultimate semester that is not offered in the final semester, provided that failure in that one course is the only thing preventing the student's graduation.

RC: The Repeated Course Designator

Courses in which a student has earned a grade lower than B– may be repeated under certain conditions. A course in which the student earned a grade between *D–* and *C+*, inclusive, may be repeated only once. A course may be repeated only on a graded basis, even if the course was originally taken Pass/Fail. Courses taken Pass/Fail in which the student earned a Pass may not be repeated. A course cannot be repeated through credit by examination.

Students should note that repeating a course may improve the grade point average, but it may also lead to problems in meeting minimum hour requirements for class standing and progress toward a degree. Repeating a course does not increase the number of hours used in calculation of the grade point average. All grades earned will be shown on the transcript, but only the latest grade will be used for computation of grade point averages.

W: Withdrawal

A student may withdraw from a course at any time prior to the deadline for withdrawal published in the Academic Calendar. The deadline is usually the Friday following the date for reporting mid-semester deficiencies. The *W* is recorded for any course from which a student withdraws. A course in which a *W* is recorded is not used in figuring grade point averages.

Requirements for the Degree

Candidates for a degree must have completed satisfactorily all curriculum requirements, have passed all prescribed examinations, and be free of indebtedness to the university. If graduation requirements change during the time students are in school, they may elect to be bound by the requirements published in the catalog any year during their undergraduate academic career at Vanderbilt.

Grade Point Average Requirements

To be eligible for graduation, a student must have successfully completed all degree requirements and shall have earned a minimum grade point average of 2.000 in (a) all courses taken, (b) courses taken within the School of Engineering, and (c) department courses of each major.

Hours Required for Graduation

The specific course requirements and total hours required for the bachelor's degree vary with the student's major program. Detailed requirements for each program are shown in the specimen curricula in the Courses of Study section.

Residence Requirements

A minimum of four semesters including the last two semesters must be spent in residence in the School of Engineering. A student in the School of Engineering is considered "in residence" if the student is (a) physically present at Vanderbilt and enrolled in Vanderbilt University classes offered on campus, or (b) enrolled in at least 12 credit hours in an approved Vanderbilt study abroad program. During these four or more semesters, the student must have completed at least 60 semester hours of an approved curriculum in one of the degree programs.

Immersion Vanderbilt Requirement

Immersion Vanderbilt (vanderbilt.edu/immersion) allows students to pursue a multi-year path to be curious, to develop their passions and to learn by experience. To fulfill the university requirement of Immersion Vanderbilt, a student must participate in immersive experiences and then complete a culminating project that is based on one specific immersive experience.

The experiential learning may focus on one or more areas of student interest. Most engineering students will take advantage of a four-year engineering design experience to satisfy the requirements of Immersion Vanderbilt. Each engineering major offers such a multi-year experience within its curriculum. Students whose plans include professional development may also pursue industrial internships. A research path can engage the student in discovery through research in engineering or other fields. While most engineering students will select an immersion experience associated with their major, students can pursue an Immersion plan outside their home program. For example, students interested in creative expression might develop a performance piece, exhibit, or artistic work, while those interested in international study may explore firsthand the culture, language, and history of other countries. Students interested in such immersion plans should consult the Office of Immersion Resources (OIR).

The Immersion Vanderbilt process is composed of several phases. The initial step involves the creation of a plan that identifies the intended Immersive experience. Before students start their immersive experience, they will submit the Immersive Experience Declaration Form. Students may submit multiple immersive experience forms throughout their time at Vanderbilt University. After each experience, a self-reflection component is required.

Immersion Vanderbilt culminates in the creation of a final project arising from one of the experiences. Approval and assessment of the project is done by the supervising school or college. Senior design projects in the School of Engineering satisfy the final project requirement for Immersion Vanderbilt, with students presenting the results of their design project at the school's Design Day. For students completing other immersion projects, OIR coordinates a series of showcases open to the entire campus where students display their projects. Upon completion of the project, OIR conveys that the requirements have been met by showing completion of the Immersion Vanderbilt graduation requirement on the student's degree audit and adding the Immersion project to the student's transcript.

Transfer Credit

Work that a student contemplates taking at a college or university other than Vanderbilt after matriculating to VU is treated as transfer work and must be approved in advance in writing through the YES Transfer Credit application. The institution must have appropriate regional accreditation. It is the student's responsibility to provide all information needed for an assessment of the program and course(s) for which transfer credit is requested. Students must upload a detailed syllabus, which then must be approved by the Office of the University Registrar, the relevant Vanderbilt University department, and the School of Engineering Dean's Office. Work transferred to Vanderbilt from another institution will not be included in the Vanderbilt grade point average. No transfer credit course in which a grade below C- was earned or that was taken after the start of the

penultimate Vanderbilt semester will be credited toward a degree offered by the School of Engineering. A course a student has taken at Vanderbilt may not be repeated in another institution to obtain a higher grade or to obtain credit. Students who have been dismissed from Vanderbilt and subsequently return to Vanderbilt are not eligible to receive transfer credit for any classes taken during the period of dismissal. Students cannot take courses for transfer credit at or through another institution while simultaneously enrolled in a semester at Vanderbilt unless authorized in advance by the School's Administrative Committee.

Credit by Examination

In certain circumstances students may be awarded course credit by departmental examination. (This procedure is distinct from the award of credit through the College Board Advanced Placement or International Baccalaureate Examinations, taken prior to a student's first enrollment at Vanderbilt or another college.)

Students who want to earn credit by departmental examination should consult the associate dean concerning procedures. To be eligible, students must be in good standing.

Students must obtain the approval of the chair of the department that is to give the examination and of the instructor designated by the chair. Students may earn up to 8 hours of credit by examination in any one department, although this limitation might be raised on approval of the Administrative Committee. Students may attempt to obtain credit by examination no more than twice in one semester, no more than once in one course in one semester, and no more than twice in one course.

Credit hours and grade are awarded on the basis of the grade earned on the examination, subject to the policy of the department awarding credit. Students have the option of refusing to accept the credit hours and grade after learning the results of the examination.

Students enrolled for at least 12 hours are not charged tuition for hours for which credit by examination is awarded, so long as the amount of credit falls within the allowable limits of an 18-hour tuition load, including no-credit courses dropped after the change period of registration. Students in this category must pay a fee of $50 for the cost of administering the examination.

Registration

A period is designated in each semester during which continuing students, after consultation with their advisers, register for work to be taken during the next term. Students can access their registration appointment times and the registration system via YES (Your Enrollment Services) at yes.vanderbilt.edu.

Auditing

Regularly enrolled students in the School of Engineering who want to audit courses in any of the undergraduate schools of the university must get the written consent of the instructor to attend the class and register to audit the course. Forms are available from the School of Engineering Office of Academic Services. No permanent record is kept of the audit. Regular students may audit one class each semester.

Change of Course

During the change period of registration as defined in the Academic Calendar, students may add or drop courses without academic penalty. After the change period, new courses may not be added, except under very unusual circumstances and with the approval of the adviser, the course instructor, and the senior associate dean.

A student may drop a course without entry on the final record, provided the course is dropped during the change period of registration. After the second week of classes and extending to the date published in the university calendar (generally eight weeks into a semester), a course may be dropped with approval of the student's adviser; a W (withdrawal) will be recorded.

Examinations

Examinations are usually given at the end of each semester. Exams will be no longer than three hours in length

and are given according to the schedule published in the *Final Examination Schedule.* The School of Engineering does not offer an alternate examination schedule. All examinations are conducted under the honor system. Students must be present for all their scheduled final exams or otherwise will default on their exams.

Class Standing

School of Engineering students are promoted on the basis of cumulative GPA, hours earned, and regular semesters in residence. For the purposes of promotion, a regular semester is defined as any fall or spring term in which a student is enrolled at Vanderbilt University. Test credit and transfer credit can be used to satisfy the credit hour requirement.

VUSE Promotion Standards

Class Standing	GPA Requirement	Credit Hour Requirement	Minimum Residence Requirement
Sophomore	1.80	24 hours earned	2 regular semesters
Junior	1.90	54 hours earned	4 regular semesters
Senior	2.00	86 hours earned	6 regular semesters

Academic Standing Good Standing

To remain in good academic standing, a student must pursue a program leading toward a degree in the School of Engineering and meet all GPA and hours earned requirements at the conclusion of each fall and spring semester. A first-year student must successfully complete at least 12 hours and earn at least a 1.8 semester GPA each semester to remain in good standing. A sophomore, junior, or senior must complete at least 12 hours and earn at least a 2.0 semester GPA each semester to remain in good standing. In addition, a student must also promote to the next academic class every two regular semesters according to the VUSE promotion standards (above) to remain in good standing.

Probation

Students who fail to meet the GPA, hours earned, or class standing promotion standards required to remain in good standing will be placed on academic probation. Students who are not progressing toward a degree in the School of Engineering may be placed on academic probation. Students who fail to return to good standing after a semester on probation will be continued on probation or dismissed. Students who are on probation for three semesters risk dismissal.

A student authorized by the Administrative Committee to carry fewer than 12 hours because of illness or for some other approved reason may be placed on probation if the student's work is deemed unsatisfactory.

Required Leave of Absence

Under certain circumstances, a student may be required to take a semester-long leave of absence from the university. Such a leave may be required for students for whom one or more of the following conditions apply:

- Failing to pass 6 or more credit hours in a semester;
- Earning a semester grade point average of 1.4 or less; or
- Failing to improve academic achievement while on probation.

Dismissal

Any student who is deemed by the Administrative Committee not to be making satisfactory progress toward a degree in engineering will be dismissed from the School of Engineering and from Vanderbilt University. Satisfactory progress includes completing required courses in a timely manner and maintaining a 2.000 GPA in all courses, in the school, and in the student's major. Causes of dismissal include:

- Failure of all courses in any semester
- Three or more semesters on probation
- Failure to promote to the next class standing after three semesters
- Failure to progress toward a degree in the School of Engineering

Dismissed students are eligible to apply for reinstatement to the School of Engineering and to Vanderbilt University after one calendar year. The reinstatement process is outlined at registrar.vanderbilt.edu/reinstatement. Students who are dismissed and later apply for reinstatement are ineligible to receive transfer credit for courses taken while dismissed.

Class Attendance

Students are expected to attend all scheduled meetings of each class in which they are enrolled. At the beginning of each semester, instructors will explain the policy regarding absences in each of their classes. Students having excessive absences will be reported to the Office of the Dean. Class attendance may be a factor in determining the final grade in a course.

Scholarship Requirements

Those students having honor scholarships are expected to maintain a 3.000 grade point average while taking a minimum of 12 hours. Failure to maintain a 3.000 grade point average each year will result in the cancellation of the scholarship.

Grade Reports

A grade report will be available to the student on Academic Record in YES as soon as possible after the conclusion of each semester. This report will give the total hours and grade points earned during the semester, as well as the cumulative hours and grade points earned through that semester. Students should examine these reports carefully and discuss them with their faculty advisers. Any errors should be reported immediately to the Office of Academic Services of the School of Engineering.

A grade reported and recorded in the Office of the University Registrar may be changed only upon written request of the instructor and with approval of the Administrative Committee. The committee will approve such a change only on certification that the original report was in error.

Undergraduate Enrollment in Graduate Courses

A qualified Vanderbilt junior or senior may enroll in courses approved for graduate credit by the graduate faculty. Credit from such courses may be applied to undergraduate degree requirements or, upon the student's admission to the Vanderbilt University Graduate School, toward a graduate degree. Vanderbilt cannot guarantee that another graduate school will grant credit for such courses. The principles governing this option are as follows:

1. Work taken under this option is limited to courses numbered 5000 and above and listed in the catalog of the Graduate School, excluding thesis and dissertation research courses and similar individual research and reading courses.
2. The student must, at the time of registration, have a 3.500 grade point average in the preceding two semesters.
3. The total course load, graduate and undergraduate courses, must not exceed 18 hours in that semester.
4. The student must obtain the written approval of their academic adviser and the instructor of the course on a form available in the Office of Academic Services.
5. Permission for Vanderbilt undergraduates to enroll in graduate courses does not constitute a commitment on the part of any program to accept the student as a graduate student in the future.
6. An undergraduate student exercising this option will be treated as a graduate student with regard to class requirements and grading standards.

Reserving Credit for Graduate School

1. Undergraduate students who want to count credit earned in a course numbered 5000 and higher for graduate credit must at the time of registration declare their intention on a form available in the Office of Academic Services.
2. The work must be in excess of that required for the bachelor's degree.
3. All of the criteria detailed above regarding the enrollment by undergraduates in graduate courses apply under this option.

Leave of Absence

A student at Vanderbilt or one who has been admitted to Vanderbilt may, with the approval of his or her academic dean, take an official leave of absence for as much as two semesters and a summer session. Leave of absence forms are available in the Office of Academic Services. A student who fails to register in the university at the end of the leave will be withdrawn from the university.

Change of Address

Any change of address should be reported to the Office of the University Registrar using the YES online form. The university will consider notices or other information delivered if mailed to the address on file in YES.

Normal Program of Study

The normal program of study is 12 to 18 hours per semester. Students must be authorized by the senior associate dean to register for fewer than 12 hours.

Withdrawal from the University

A student proposing to withdraw from the university must notify the Office of Academic Services of the School of Engineering so that proper clearance may be granted and incomplete work is not charged as a failure against the student's record.

School of Engineering Administration and Faculty

KRISHNENDU ROY, Ph.D., Bruce and Bridgitt Evans Dean of Engineering
DOUGLAS E. ADAMS, Ph.D., Vice Dean of Engineering

DUCO JANSEN, Ph.D., Senior Associate Dean for Graduate Education and Faculty Affairs

CYNTHIA B. PASCHAL, Ph.D., Senior Associate Dean for Undergraduate Education

CYNTHIA A. REINHART-KING. Ph.D., Senior Associate Dean for Research

JULIANNE VERNON, Ph.D., Associate Dean for Academic Success

JULES WHITE, Ph.D., Associate Dean for Strategic Learning Programs

ALISON WILLIAMS, M.S., Interim Chief Business Officer

ADAM MCKEEVER-BURGETT, M.Div., Assistant Dean for Academic Services

THOMAS J. WITHROW, Ph.D., Assistant Dean for Design

EMILY ARIZAGA, M.Ed., Academic and Educational Support Coordinator

MADDIE FRENCH, M.A, Senior Academic Counselor

ALLISON GOMES, M.A., Academic Counselor

Named and Distinguished Professorships

MARK D. ABKOWITZ, Distinguished Professor of Civil and Environmental Engineering

DOUGLAS E. ADAMS, Distinguished Professor of Civil and Environmental Engineering; Daniel F. Flowers Professor

GAUTAM BISWAS, Cornelius Vanderbilt Professor of Engineering

JAMES A. CADZOW, Centennial Professor of Electrical Engineering, Emeritus

THOMAS A. CRUSE, H. Fort Flowers Professor of Mechanical Engineering, Emeritus

PETER T. CUMMINGS, John R. Hall Professor of Chemical Engineering, Emeritus

BENOIT M. DAWANT, Cornelius Vanderbilt Professor in Engineering

CRAIG L. DUVALL, Cornelius Vanderbilt Professor of Engineering

PHILIPPE M. FAUCHET, Distinguished Professor of Electrical and Computer Engineering; Bruce and Bridgitt Evans Dean's Chair in Engineering, Emeritus

DANIEL M. FLEETWOOD, Olin H. Landreth Professor of Engineering

KENNETH F. GALLOWAY, Distinguished Professor of Engineering, Emeritus

MICHAEL GOLDFARB, H. Fort Flowers Professor of Mechanical Engineering

JOHN C. GORE, Chancellor's University Professor of Radiology and Radiological Sciences and Biomedical Engineering

THOMAS R. HARRIS, Orrin Henry Ingram Distinguished Professor of Engineering, Emeritus

GEORGE M. HORNBERGER, Distinguished University Professor, Emeritus; Craig E. Philip Professor of Engineering, Emeritus

ROBERT W. HOUSE, Orrin Henry Ingram Distinguished Professor of Engineering Management, Emeritus

DAVID S. KOSSON, Distinguished Professor of Civil and Environmental Engineering; Gass Family Chair in Energy and the Environment

MICHAEL R. KING, J. Lawrence Wilson Professor of Engineering

M. DOUGLAS LEVAN, J. Lawrence Wilson Professor of Engineering, Emeritus

SANKARAN MAHADEVAN, John R. Murray Sr. Professor in Engineering

ANITA MAHADEVAN-JANSEN, Orrin H. Ingram Professor in Biomedical Engineering

W. DAVID MERRYMAN, Walters Family Professor

MICHAEL I. MIGA, Harvie Branscomb Professor

CAGLAR OSKAY, Cornelius Vanderbilt Professor of Engineering

SOKRATES T. PANTELIDES, University Distinguished Professor of Physics and Engineering

PETER N. PINTAURO, H. Eugene McBrayer Professor of Chemical Engineering, Emeritus

CYNTHIA A. REINHART-KING, Cornelius Vanderbilt Professor of Engineering

KRISHNENDU ROY, Bruce and Bridgitt Evans Dean of Engineering; Distinguished Professor of Biomedical Engineering

NILANJAN SARKAR, David K. Wilson Professor of Engineering

DOUGLAS C. SCHMIDT, Cornelius Vanderbilt Professor of Engineering

RONALD D. SCHRIMPF, Orrin Henry Ingram Professor of Engineering

RICHARD E. SPEECE, Centennial Professor of Civil and Environmental Engineering, Emeritus

JANOS SZTIPANOVITS, E. Bronson Ingram Distinguished Professor of Engineering

TAYLOR G. WANG, Centennial Professor of Materials Science and Engineering, Emeritus; Centennial Professor of Mechanical Engineering, Emeritus

ROBERT J. WEBSTER III, Richard A. Schroeder Professor in Mechanical Engineering

SHARON M. WEISS, Cornelius Vanderbilt Professor of Engineering

JOHN P. WIKSWO, JR., Gordon A. Cain University Professor; A. B. Learned Professor of Living State Physics

JAMEY D. YOUNG, Cornelius Vanderbilt Professor of Engineering

Department Chairs and Division Director

MICHAEL R. KING, Biomedical Engineering

PAUL E. LAIBINIS, Chemical and Biomolecular Engineering

CAGLAR OSKAY, Civil and Environmental Engineering

XENOFON KOUTSOUKOS, Computer Science

BENNETT A. LANDMAN, Electrical and Computer Engineering

YIORGOS KOSTOULAS, General Engineering

NILANJAN SARKAR, Mechanical Engineering

Faculty

For a list of current faculty, please visit vanderbilt.edu/faculty-affairs/faculty-registry/.

Scientific Computing

DIRECTORS Robert E. Bodenheimer, Thomas J. Palmeri, David A. Weintraub

Affiliated Faculty

PROFESSORS Ralf Bennartz (Earth and Environmental Sciences), Gautam Biswas (Electrical Engineering and Computer Science), Robert E. Bodenheimer Jr. (Computer Science), Mark N. Ellingham (Mathematics), David Furbish (Earth and Environmental Sciences), Guilherme Gualda (Earth and Environmental Sciences), Kelly Holley-Bockelman (Astronomy), Shane Hutson (Physics), Bennett Landman (Electrical and Computer Engineering), Gordon D. Logan (Psychology), Haoxiang Luo (Mechanical Engineering), Terry P. Lybrand (Chemistry and Pharmacology), Michael I. Miga (Biomedical Engineering), Mark Neamtu (Mathematics), Thomas J. Palmeri (Psychology and Neuroscience), Antonis Rokas (Biological Sciences), Jeffrey D. Schall (Psychology and Neuroscience), Larry Schumaker (Mathematics), Paul Sheldon (Physics), Kalman Varga (Physics), David A. Weintraub (Astronomy)

PROFESSOR OF THE PRACTICE Gerald H. Roth (Computer Science)

ASSOCIATE PROFESSORS Sean Polyn (Psychology and Neuroscience), Jennifer Trueblood (Psychology), Greg Walker (Mechanical Engineering), Steve Wernke (Anthropology)

ASSISTANT PROFESSOR William Holmes (Physics and Astronomy)

COURSES OFFERED: SC

Faculty in the School of Engineering and the College of Arts and Science offer an interdisciplinary minor in scientific computing to help natural and social scientists and engineers acquire the ever-increasing computational skills that such careers demand. The minor is administered by the School of Engineering. Students who complete this minor will have a toolkit that includes programming skills useful for simulating physical, biological, and social dynamics, as well as an understanding of how to take advantage of modern software tools to extract meaningful information from small and large datasets.

Computation is now an integral part of modern science and engineering. In science, computer simulation allows the study of natural phenomena impossible or intractable through experimental means. In engineering, computer simulation allows the analysis and synthesis of systems too expensive, dangerous, or complex to model and build directly. Astronomers studying the formation of massive black holes, neuroscientists studying neural networks for human memory, mechanical engineers studying the designs of turbines and compressors, and electrical engineers studying the reliability of electronics aboard spacecraft are united both in the computational challenges they face and the tools and techniques they use to solve these challenges.

Students in the program in scientific computing are taught techniques for understanding such complex physical, biological, and also social systems. Students are introduced to computational methods for simulating and analyzing models of complex systems, to scientific visualization and data mining techniques needed to detect structure in massively large multidimensional data sets, to high performance computing techniques for simulating models on computing clusters with hundreds or thousands of parallel, independent processors and for analyzing terabytes or more of data that may be distributed across a massive cloud or grid storage environment.

Scientific computing at Vanderbilt is supported by faculty and includes students from a wide range of scientific and engineering disciplines. While the content domain varies, these disciplines often require similar computational approaches, high-performance computing resources, and skills to simulate interactions, model real-life systems, and test competing hypotheses. Scientific computing embodies the computational tools and techniques for solving many of the grand challenges facing science and engineering today.

The minor in scientific computing prepares students for advanced coursework that combines computational approaches with a substantive area of science or engineering. It prepares students for independent study with a faculty member on a research project. It prepares students for advanced study in graduate school. It provides skills that will be attractive to many employers after graduation.

The minor in scientific computing is distinct from the minor in computer science. Scientific computing uses computation as a tool to solve scientific and engineering problems in research and application. It is more focused on simulation, numerical techniques, high performance computing, and higher-level methods than the minor in computer science, which is focused on the algorithms, systems, and technologies that enable such methods to be developed and employed.

Scientific Computing Minor

The minor in scientific computing requires 15 credit hours, distributed as follows:

1. CS 1101 or 1103 or 1104. (3 hours)
2. CS 2204 (CS 2201 may be substituted for 2204 with the approval of a program director). (3 hours)
3. Elective courses (9 hours). Three hours must come from course list A (Mathematical, Quantitative, and Data Science Methods); three hours must come from course list B (Computational, Simulation, and Modeling Methods); and three hours can come from either course list A or B, or from independent study (SC 3850/3851) with a faculty member affiliated with the SC minor.

A. Computational, Simulation, and Modeling Methods

SC 3250	Scientific Computing Toolbox
ANTH 3261	Introduction to Geographic Information Systems and Remote Sensing
BMIF 6310	Foundations of Bioinformatics
BMIF 7380	Data Privacy in Biomedicine
BSCI 3272	Genome Science
BME 2400	Quantitative Methods I: Statistical Analysis
CE 4320	Data Analytics for Engineers
ECON 3032	Applied Econometrics
ECON 3035	Econometric Methods
ECON 3750	Econometrics for Big Data
ECE 6358	Quantitative Medical Image Analysis
HOD 3200	Introduction to Data Science
MATH 3620	Introduction to Numerical Mathematics
MATH 3670	Mathematical Data Science
MATH 4600	Numerical Analysis
MATH 4620	Linear Optimization
MATH 4630	Nonlinear Optimization

B. Computational, Simulation, and Modeling Methods

SC 3260	High Performance Computing
ASTR 3600	Stellar Astrophysics
ASTR 3700	Galactic Astrophysics
ASTR 3800	Structure Formation in the Universe
BME 7310	Advanced Computational Modeling and Analysis in Biomedical Engineering
BME 7410	Quantitative Methods in Biomedical Engineering
CHBE 4830	Molecular Simulation
CHEM 5410	Molecular Modeling Methods
CHEM 5420	Computational Structural Biochemistry
CS 3274	Modeling and Simulation
EES 4760	Agent and Individual Based Computational Modeling
MATH 3630	Mathematical Modeling in Biology
MATH 3660	Mathematical Modeling in Economics
ME 4263	Computational Fluid Dynamics and Multiphysics Modeling
ME 4275	Finite Element Analysis
NSC 3270	Computational Neuroscience
PHYS 3200	Statistical Physics
PHYS 3790	Computational Physics
PSY 4218	Computational Cognitive Modeling
PSY 4219	Scientific Computing for Psychological and Brain Sciences
PSY 4775	Models of Human Memory

Scientific Computing

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ASSOCIATE PROFESSORS Andreas A. Berlind (Astronomy), Robert E. Bodenheimer (Computer Science), Will Doyle (Higher Education and Public Policy), Bennett Landman (Electrical Engineering), Haoxiang Luo (Mechanical Engineering), Sean Polyn (Psychology and Neuroscience), Jennifer Trueblood (Psychology), Steven Tschantz (Mathematics), Greg Walker (Mechanical Engineering), Steve Wernke (Anthropology)

ASSOCIATE PROFESSOR OF THE PRACTICE Gerald H. Roth (Computer Science)

ASSISTANT PROFESSORS Hiba Baroud (Civil and Environmental Engineering), Matthew Berger (Computer Science), Nicole Creanza (Biological Sciences), William Holmes (Physics and Astronomy), Carlos Lopez (Cancer Biology), Ipek Oguz (Computer Science and Biomedical Engineering), Mikail Rubinov (Biomedical Engineering)

COURSES OFFERED: SC

The College of Arts and Science and the School of Engineering offer an interdisciplinary minor in scientific computing to help students in the physical, biological, and social sciences as well as engineering acquire the ever-increasing computational skills that such careers demand. Students who complete this minor will have a toolkit that includes programming skills useful for simulating physical, biological, and social dynamics as well as an understanding of how to take advantage of modern software tools to extract meaningful information from small and large data sets.

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The minor in scientific computing prepares students for advanced course work that combines computational approaches with a substantive area of science or engineering. It prepares students for directed or independent study with a faculty member on a research project. It prepares students for advanced study in graduate school. It provides skills that will be attractive to many employers after graduation.

The minor in scientific computing is distinct from the minor in computer science. Scientific computing uses computation as a tool to solve scientific and engineering problems in research and application. It is more focused on simulation, numerical techniques, high performance computing, and higher-level methods than the minor in computer science, which is focused on the algorithms, systems, and technologies that enable such methods to be developed and employed.

Details of the minor requirements are provided in the School of Engineering section of the catalog, and are also available at vanderbilt.edu/scientific_computing.

Sociology

CHAIR Holly McCammon

DIRECTOR OF UNDERGRADUATE STUDIES Shaul Kelner

DIRECTOR OF GRADUATE STUDIES Joshua Murray

PROFESSORS EMERITI George Becker, Karen Campbell, Walter Gove, Gary Jensen, Ronnie Steinberg

PROFESSORS André Christie-Mizell, Daniel Cornfield, Jenny Davis, David Hess, Larry Isaac, Holly McCammon, Jonathan Metzl

ASSOCIATE PROFESSORS Laura Carpenter, Shaul Kelner, Richard Lloyd, Joshua Murray, Mariano Sana, Lijun Song

ASSISTANT PROFESSORS Brianna Castro, Rachel Donnelly, Alexandre Frenette, Patrick Greiner, Lucie Kalousova, Bianca Manago, Lawrence Stacey

PRINCIPAL SENIOR LECTURERS Joe Bandy

SENIOR LECTURERS Laurie Woods

LECTURERS William Hale, Jihan Mohammed, Tiffany Wilmot

ASSOCIATE PROFESSORS OF THE PRACTICE Zdravka Tzankova

COURSES OFFERED: SOC

Sociology, the study of social consensus, conflict, and change, offers students a rich and systematic understanding of society and the meaning of social interaction. The department’s courses cover a wide range of sociological themes including arts, culture, and religion; cities, states, and political economy; deviant behavior and crime; environment and population; gender and sexuality; health and the life course; race, ethnicity, and immigration; social movements, politics, and power; and work, labor, and occupations. Undergraduate courses in sociology prepare students for graduate work or provide further preparation for a career in law, medicine, business, research, education, the clergy, nursing, social work, or civil service. Two major programs are available, sociology and environmental sociology. Students may declare only one of the majors offered by the Department of Sociology; double majors within the department are not permitted.

Program of Concentration in Sociology

Students majoring in sociology are required to complete 33 credit hours of work in sociology (36 credit hours for students in the Honors Research Track). The major consists of five types of courses as listed below: introduction, theory, research skills, core areas, and electives.

Course work for the major is distributed as follows:

Program I (Standard Track)

A total of 33 credit hours as follows:

1. *Introduction:* Sociology 1010, 1010W, 1020, or 1020W	3
2. *Theory:* Sociology 3001	3
3. *Research Skills:* Sociology 3002 (or HOD 2500 for students who double major in sociology and HOD)	3
4. *Core Areas:* Students must take at least one course in three of the four core areas listed below. A course cannot be used to satisfy more than one requirement in the major. *Arts and Culture, Institutions and Organizations:* Sociology 3201, 3202, 3203, 3204, 3205, 3213, 3221, 3222, 3223, 3224, 3224W, 3231, 3232, 3233, 3615 *Health, Environment, Population, and Migration:* Sociology 3301, 3302, 3303, 3304, 3306, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3321, 3322; Environmental and Sustainability Studies 4101, 4101W; Medicine, Health, and Society 2310, 2430 *Politics, Law, and Conflict:* Sociology 3233, 3601, 3602, 3603, 3604, 3605, 3611, 3612, 3613, 3614, 3615, 3616, 3621, 3622, 3623, 3624; Jewish Studies 2560 *Race, Ethnicity, and Gender:* Sociology 3236, 3601, 3616, 3701, 3702, 3703, 3704, 3711, 3722, 3723, 3724; Jewish Studies 2400, 2450	9
5. *Electives* Any 5 sociology courses not used to satisfy the above requirements. SOC 2100 or its equivalent may be counted toward the electives. (Equivalent courses are ECON 1500 or 1510 or MATH 1011 or 2820. Students who double major in sociology and psychology or in sociology and the Peabody majors of human and organizational development, child development, cognitive studies, or child studies may also choose from PSY 2100 or PSY-PC 2110.) Electives may also include only one of the following 1000-level sociology courses: Sociology 1030, 1041, 1041W, or 1111. No other 1000-level sociology course may be counted toward the electives requirement of the major except by permission of the director of undergraduate studies. The Department of Sociology advises students to group their elective sociology courses in a cluster of advanced concentration electives to be selected with the student’s adviser.	15

Program II (Honors Research Track)

A total of 36 credit hours as follows:

The Honors Research Track offers superior majors in sociology the opportunity to pursue intensive work through an independent research project. Students interested in pursuing the Honors Research Track in Sociology should contact the director of undergraduate studies for more information. To be considered for the Honors Research Track in Sociology, a student must have a minimum cumulative GPA of 3.3 and a minimum GPA of 3.3 for courses that count toward the sociology major. Students who are recommended for the program by the director of undergraduate studies will typically begin the program in the first semester of their junior or senior year.

The Honors Research Track in Sociology requires:

- Successful completion of requirements 1–4 in Program I, for a total of 18 credit
- Successful completion of the statistics requirement: SOC 2100 or its equivalent (defined in requirement 5 of Program I).
- Completion of 12 credit hours of elective courses. The statistics requirement is counted toward the Electives may include only one of the following 1000-level sociology courses: Sociology 1041, 1041W, or 1111. No other 1000-level sociology course may be counted toward the electives requirement of the major except by permission of the director of undergraduate studies. If students take more than 6 credit hours of SOC 4981, the additional credit hours (7–12) are counted toward the elective courses.
- Successful completion of at least two semesters of SOC 4981 (Honors Research). The first semester of 4981 (Honors Research) is a 3 credit hour seminar in which students develop the literature review and research plan for the honors thesis. In the second semester of 4981 (Honors Research), also for 3 credit hours, students must complete the research and data collection, data analysis, and initial write-up of results of the thesis. Students may elect to take a third or fourth semester of 4981 during their senior year, when they may, for example, work on revisions of the project and/or on publication. Students who begin the Honors Track in their senior year may also take more than 6 credit hours of 4981, up to a maximum of 12 credit hours.
- Successful defense of the completed thesis through an oral defense attended by the chair and reader of the thesis; this oral defense typically takes place during the second semester of the student’s senior year. In order to earn honors in sociology, students must successfully complete and defend an honors thesis before graduation.

Comprehensive Exam

In order to graduate with a sociology major, students must take a comprehensive exam during their senior year. The exam is not graded, and no grade will appear on the student’s transcript. The purpose of the exam is to test the extent to which sociology majors are retaining core aspects of the sociology curriculum.

Program of Concentration in Environmental Sociology

Environmental sociology is the study of the relationship between modern societies and the environment at a variety of scales, from households to global relations. It includes issues such as public understanding of environmental issues, the environment and inequality, environmental social movements and social change, and analysis of environmental reform and adaptation. Environmental sociology is different from environmental science, which is based in the natural sciences, and environmental studies, which includes courses from a wide range of disciplines, including engineering and the humanities. The department’s program in environmental sociology includes a solid introduction to sociology and sociological methods as well as foundation requirements in environmental science. The program prepares students for careers in government, the law, management, research and teaching, and the nonprofit sector.

Students majoring in environmental sociology are required to complete 33 credit hours of course work. The major consists of four types of courses: foundation social science courses, foundation environmental science courses, research skills, and environmental sociology courses.

Program I (Standard Track)

A total of at least 33 credit hours as follows:

1. *Foundation Courses in Sociology* SOC 1020 or 1020W or 1030, SOC 3001	6 credit hours
2. *Foundation Courses in Environmental Sciences* Two courses from EES 1510, 1030, 1070, 1080, 1140, 1111**, 2150, 2510,* 3310,* 3220,* 3310,* 4680,* 4750,* 4820;* at least one of which must address climate-related issues (EES 1080, 1140, 2110*, 2150, 2510*, 3310*, 4650*, 4680*, 4820*, or another EES course as approved by the director of undergraduate studies of Environmental Sociology). **Requires prerequisites.* ***1111s require permission of the director of Environmental Sociology.*	at least 6 credit hours
3. *Research Skills* SOC 2100 (or other statistics course approved by the director of undergraduate studies of Environmental Sociology) followed by or concurrent with SOC 3002 or HOD 2500 for those majoring in HOD.	6 credit hours
4. *Environmental Sociology Core* 15 credit hours selected from the following: SOC 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3321, 3604, 3605, 3881,* 4961;* ENVS 4101, ENVS 4101W **As approved by the director of undergraduate studies of Environmental Sociology*	15 credit hours

Program II (Honors Research Track in Environmental Sociology)

A total of at least 36 credit hours as follows:

The Honors Research Track offers superior majors in environmental sociology the opportunity to pursue intensive work through an independent research project. Students interested in pursuing the Honors Research Track in Environmental Sociology should contact the director of undergraduate studies of Sociology for more information. To be considered for the Honors Research Track in Environmental Sociology, a student must have a minimum cumulative GPA of 3.3 and a minimum GPA of 3.3 for courses that count toward the environmental sociology major. Students who are recommended for the program by the director of undergraduate studies of Sociology will typically begin the program in the first semester of their junior or senior year.

The Honors Research Track in Environmental Sociology requires:

1. Successful completion of requirements 1 through 3 in the Standard Track.
2. At least 12 credit hours from requirement 4 in the Standard Track.
3. Successful completion of at least two semesters of SOC 4981 (Honors Research). The first semester of 4981 (Honors Research) is a 3 credit hour seminar in which students develop the literature review and research plan for the honors thesis. In the second semester of 4981 (Honors Research), also for 3 credit hours, students must complete the research and data collection, data analysis, and initial write-up of results of the thesis. Students may elect to take a third or fourth semester of 4981 during their senior year, when they may, for example, work on revisions of the project and/or on publication. Students who begin

the Honors Program in their senior year may also take more than 6 credit hours of 4981, up to a maximum of 12 credit hours.

4. Successful defense of the completed thesis through an oral defense attended by the chair and reader of the thesis; this oral defense typically takes place during the second semester of the student's senior year. To earn honors in environmental sociology, students must successfully complete and defend an honors thesis before graduation.

Comprehensive Exam

In order to graduate with an environmental sociology major, students must take a comprehensive exam during their senior year. The exam is not graded, and no grade will appear on the student's transcript. The purpose of the exam is to test the extent to which majors are retaining core aspects of the environmental sociology curriculum.

Minor in Sociology

The minor in sociology is intended for those students who want to gain an overview of the discipline and to sample some of the special lines of study in it.

Students are required to complete 18 credit hours of course work inside the department, distributed as follows:

1. Sociology 1010, 1010W, or 1020, 1020W	3
2. Sociology 3001	3
3. Four courses, including at least one from three of the four core areas listed in above major	12
Total credit hours:	18

Licensure for Teaching

Candidates for teacher licensure in sociology at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Spanish and Portuguese

CHAIR N. Michelle Murray

DIRECTOR OF UNDERGRADUATE STUDIES María Paz Pintané

DIRECTOR OF GRADUATE STUDIES Christina Karageorgou-Bastea

PROFESSORS EMERITI Susan Berk-Seligson, Victoria A. Burrus, Cathy L. Jrade, C. Enrique Pupo-Walker

PROFESSORS Earl E. Fitz, Edward H. Friedman, Ruth Hill, William Luis, Philip D. Rasico, Benigno Trigo, Andrés Zamora

ASSOCIATE PROFESSORS José Cárdenas Bunsen, Christina Karageorgou-Bastea, Emanuelle Oliveira-Monte, N. Michelle Murray

ASSISTANT PROFESSORS Luis F. López González, Anna Castillo

ASSOCIATE PROFESSOR OF THE PRACTICE Chalene Helmuth

ASSISTANT PROFESSOR OF THE PRACTICE María Paz Pintané

PRINCIPAL SENIOR LECTURERS Lorraine Catanzaro, Rachel R. Chiguluri, Heraldo Falconi, Victoria Gardner, Clint Hendrix, Benjamin Legg, Patrick Murphy, Amarilis Ortiz, Carolina Palacios.

SENIOR LECTURERS José Luis Aznar, Sarah Delassus, Stacey Johnson, Alicia Lorenzo-García, , Cynthia M. Wasick

PRINCIPAL SENIOR LECTURER, RETIRED Elena Olazagasti-Segovia

SENIOR LECTURER, RETIRED Raquel Rincon

COURSES OFFERED: CTLN, PORT, SPAN

The Department of Spanish and Portuguese offers a wide range of courses in the language, culture, and literature of Spain and Spanish America and is well known for its program in Portuguese and Brazilian studies. Intensive Elementary Catalan is also offered.

The department offers programs of concentration in both Spanish and Spanish and Portuguese. Majors take courses in language, literature, linguistics, and culture. An interdisciplinary major is available in Spanish and European Studies. Qualified Spanish majors may elect to take graduate courses in their senior year or participate in honors work. Minors in Spanish and in Portuguese are also offered.

The department serves majors from the Center for Latin American Studies and the Max Kade Center for European and German Studies. On the graduate level, the department offers a doctoral program in Spanish and a combination doctoral degree in Spanish and Portuguese.

Many students participate in Vanderbilt programs in Seville, Barcelona, Madrid, and Palma de Mallorca in Spain; Argentina, Chile, and Brazil in South America; and Cuba and the Dominican Republic in the Caribbean. Maymesters in Spain and Peru are also offered. Activities organized by the department include lectures, films, symposia, and Brazil Week. The department has a chapter of the national honor society Sigma Delta Pi for students of Spanish.

Note for all programs: An AP score of 5 on the Spanish literature test, with a proctored departmental placement score of 460 or greater, may substitute for SPAN 3301W. An AP score of 5 on the Spanish language test, with a proctored departmental placement test of 460 or greater, may substitute for Spanish 3302. A student who earns an AP score of 5 on both tests and receives a proctored departmental placement score of 460 or greater may choose only one substitution.

Program of Concentration in Spanish

The major requires 30 credit hours in Spanish courses numbered 3301W and above. The distribution requirements are as follows:

1. *Core requirements:* 3301W, 3302, and 3303. A more advanced composition course may be substituted for 3301W. A more advanced conversation course may be substituted for 3302. See note above for AP test scores that, paired with a proctored departmental placement score, may substitute for *one* of these courses.
2. *Literature:* 9 credit hours from courses numbered 3835 or 3893 or 4400–4980.
3. *Linguistics:* 3 credit hours from courses numbered 3892 or 4300–4360.
4. *Electives:* 9 credit hours from courses numbered 3320–3835 or 3891–4980. Students may substitute 3 credit hours of a language course in either Portuguese (1103 or higher) or Catalan (1103 or higher) as one elective.

All courses that count towards the major must be taken in Spanish and taken for a letter grade. The core courses 3301W and 3303 must be taken on the Vanderbilt campus. (This requirement does not apply to students who transfer to Vanderbilt from other U.S. institutions and have completed equivalent courses at their previous institution.) Students must take Spanish 3301W, 3302, and 3303 in order to participate in most study abroad programs. Students may count toward the major up to 12 credit hours of pre-approved course work from Vanderbilt study abroad programs in Spain or Latin America. Of the total number of credit hours taken abroad, no more than 6 credit hours may count toward the same distribution requirement area. A Maymester abroad course taught by a professor with an appointment in the Department of Spanish and Portuguese does not count against the 12 credit hour limit. Students may count toward elective credit up to 3 credit hours of supervised Independent Study, pre-approved by the director of undergraduate studies, in Vanderbilt study abroad programs in Spain or Latin America; such independent study counts toward the maximum limit of 12 credit hours. Students may count towards the major PORT 1103 or CTLN 1103.

Honors Program in Spanish

Candidates for honors in Spanish who meet college and departmental requirements must complete 36 credit hours in Spanish courses numbered 3301W and above. Students satisfy the requirements of the 30-credit-hour major in Spanish, in which one of the required literature courses is either the undergraduate seminar, Spanish 4980 (3 credit hours), which may be taken during either the junior or senior year, or a graduate seminar (course numbered 7000– 9520) approved by the adviser to the Honors Program, which may only be taken during the senior year. If Spanish 4980 is not available, it may, with permission of the adviser to the Honors Program, be substituted by an “enriched” undergraduate literature course in which the instructor assigns outside research and a second or longer term paper.

The remaining 6 credit hours of the honors program consist of a senior honors thesis, which is completed during the senior year as independent study (Spanish 4998–4999) under the direction of a faculty adviser. Candidates must submit a proposal for the thesis to their prospective faculty adviser no later than the second semester of their junior year. The completed thesis must be submitted within the second semester of the senior year (deadlines are available from the department). An oral examination on the thesis and the general area of research, administered by a committee of the department, will follow.

Minor in Spanish

The minor in Spanish requires a minimum of 18 credit hours. The specific requirements are as follows:

1. *3301W (A more advanced composition course may be substituted)*	3
2. *3302 (A more advanced conversation course may be substituted)*	3
3. *3303*	3
4. *3 credit hours of advanced Spanish literature chosen from courses numbered from 3835 or 3893 or 4400–4980*	3
5. *6 credit hours of electives chosen from courses numbered 3320–3835, 3891–4980*	6
Total credit hours:	18

All courses that count toward the minor must be taken in Spanish and taken for a letter grade. The core courses 3301W and 3303 must be taken on the Vanderbilt campus. (This requirement does not apply to students who transfer to Vanderbilt from other U.S. institutions and have completed equivalent courses at their previous institution.) Students must take Spanish 3301W, 3302, and 3303 in order to participate in most study abroad programs. Students may count toward the minor up to 6 credit hours of pre-approved course work from Vanderbilt study abroad programs in Spain or Latin America. A Maymester abroad course taught by a professor with an appointment in the Department of Spanish and Portuguese does not count against this limit. Students may transfer up to 3 credit hours of pre-approved course work from non-Vanderbilt study abroad programs.

MINOR IN SPANISH FOR THE PROFESSIONS -- 18 CREDITS

CORE COURSES (9 credits/3 courses) taken from

SPAN 3290 Introduction to Spanish for the Professions or
SPAN 3301W Intermediate Spanish Writing or
SPAN 3310W Spanish for Heritage Speakers

AND

SPAN 3302 Spanish for Oral Communication

AND

SPAN 3303 Introduction to Spanish and Spanish American Literature or
SPAN 3304 Current and Contemporary Issues

PROFESSIONAL COURSES (6 credits/2 courses) taken from
Span 3345 Spanish in Business and the Global Economy
Span 3830 Spanish, Health and Society
Span 3350 Spanish for the Legal Profession
Span 4310 Translation and Interpretation
Span 3891 Special Topics Course for the Professions

ELECTIVE (3 credits/1 course) taken from
SPAN 3303 or 3304, if not taken as a core course; or any SPAN course above 3304;

Approved Study Abroad course or approved Maymester Abroad course (3325, 3330); or
Approved Internship SPAN 3881

The minor in Spanish for the Professions requires a minimum of 18 credit hours. All courses that count toward the minor must be taken in Spanish and taken for a letter grade. The core courses 3290, 3301W, 3303 and 3304 must be taken at Vanderbilt. (This requirement does not apply to students who transfer to Vanderbilt from other U.S. institutions and have completed equivalent courses at their previous institution.) Students must take Spanish 3290 or 3301W; 3302; and 3303 or 3304 in order to participate in most study abroad programs. Students may count up to 6 credit hours of pre-approved course work from Vanderbilt study abroad programs in Spain or Latin America, or a Maymester abroad course taught by a professor with an appointment in the Department of Spanish and Portuguese.

Minor in Portuguese

The minor in Portuguese consists of a minimum of 15 credit hours. The specific requirements are as follows:

1. *Portuguese 2203 (Intermediate Portuguese; a more advanced language course may, subject to approval by the department, be substituted)*	3
2. *One of the following two courses: Portuguese 3301 (Portuguese Composition and Conversation) or Portuguese 3302 (Brazilian Pop Culture)*	3
3. *Portuguese 3303 (Introduction to Luso-Brazilian Literature)*	3
4. *At least one of the following two courses: Portuguese 4420 (Brazilian Literature through the Nineteenth Century) or Portuguese 4425 (Modern Brazilian Literature)*	3
5. *At least 3 additional credit hours selected from among the courses listed below (or a graduate course numbered 7000–9520 for qualified seniors; procedures may be found in the Academic Regulations section of the Undergraduate Catalog*). Portuguese 2205 (Portuguese and Global Health), Portuguese 2995 Literatures and Cultures of Lusophone Africa), Portuguese 4350 (Brazilian Culture through Native Material), 4420 (Brazilian Literature through the Nineteenth Century), 4425 (Modern Brazilian Literature), 3892 (Special Topics in Portuguese Language, Literature, and Civilization)	3
Total credit hours:	15

Program of Concentration in Spanish and Portuguese

This major focuses on the two dominant languages (Spanish and Portuguese) of the Iberian Peninsula and Latin America and their literatures and cultures. The basic requirement for this major is a minimum of 33 credit hours in Spanish and Portuguese. The distribution is as follows:

1. Core requirements of Spanish 3301W, 3302, and 3303; Portuguese 2203, 3301 (or 3302), and 3303.
2. At least two Spanish courses numbered between 3320–3330, 3355–3385, 4400–4980 or 3835, 3891 or 3893.
3. At least two of the following Portuguese courses: 2205, 2995, 3892, 4350, 4420, 4425, 7070, 7071, and 9520.
4. One additional elective to be chosen from the courses listed under area 2 and 3 above.

A student who studies abroad may be able to substitute similar culture or literature courses with the permission of the director of undergraduate studies.

Program of Concentration in Spanish and European Studies

Students pursuing the interdisciplinary major in Spanish and European studies combine their focus on Spanish language and literature with a study of modern Europe in its political, economic, and cultural diversity. Students may elect this interdisciplinary major, which requires a minimum of 33 credit hours of course work. A semester of study abroad in Spain is recommended. Course work for the major is distributed as follows:

Spanish (21 credit hours)

Spanish language and literature core courses (9 credit hours): 3301W, 3302, and 3303 (a more advanced composition course may be substituted for 3301W; a more advanced conversation course may be substituted for 3302).

Spanish culture and civilization and/or Spanish literature (12 credit hours): 3320, 3325, 3355, 3360, 3365, 4400, 4405, 4410, 4415, 4440, 4445, 4455 4470, 4620, 4640, 4670, 4690, or, subject to a variance, any other courses dealing with Spain or Iberian issues.

Students may substitute 3 credit hours of a language course in either Portuguese (1103 or higher) or Catalan (1103 or higher) as an elective.

European Studies (12 credit hours)

European Studies core courses (3 credit hours): EUS 2201 or 2203

European Studies courses or alternative topical courses as approved by major adviser (6 credit hours)

Senior Tutorial (3 credit hours): EUS 4960 or equivalent course in Spanish

Teacher Licensure

Candidates for teacher licensure in Spanish at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Catalan

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Portuguese

Note: Students may not earn credit for an introductory language course if they previously have earned credit for a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language.

Spanish

Entering students should consult their advisers or the director of undergraduate studies at the Department of Spanish and Portuguese for advice on placement. Students who have not studied Spanish in high school should begin their studies at Vanderbilt in Spanish 1100. Students with high school Spanish on their records must present a department placement test score in Spanish to be placed correctly. (See department website for more details.)

Note: Students may not earn credit for an introductory language course if they previously have earned credit for

a higher-level course taught in that same language. In addition, students may not earn credit for an intermediate-level language course if they previously have earned credit for a higher-level course taught in that same language.

Students who have earned Advanced Placement or International Baccalaureate credit in a foreign language will forfeit the test credit if they complete a lower-level course taught in that same language. Exception: Students who take Spanish 3301W do not forfeit credit for Spanish 3302.

Special Education (Peabody)

Major in Special Education

Honors Program

B.S. Degree Requirements

Minors

Minor in Special Education

Minor in Instruction in Special Education

Disability Studies

CHAIR Joseph H. Wehby

ASSOCIATE CHAIR Kimberly Paulsen

DIRECTOR OF GRADUATE STUDIES Robert M. Hodapp

DIRECTOR OF PROFESSIONAL STUDIES Alexandra Da Fonte

DIRECTOR OF UNDERGRADUATE STUDIES Andrea M. Capizzi

The undergraduate program in special education prepares students to work with persons with disabilities and leads to licensure in special education. Students pursue an interdisciplinary major in exceptional learning with emphasis in one of the two specialty areas: high-incidence disabilities (interventionist program K-8 and/or 6-12) or multiple and severe disabilities (comprehensive program). This major can be combined with other majors such as cognitive studies, child development, or majors in the College of Arts and Science. The program is field-oriented and problem centered, with most professional courses requiring direct involvement with individuals with disabilities. Beginning in the freshman year, students observe and work in a variety of educational settings in local schools and in classrooms off campus.

Vanderbilt students seeking teacher licensure must apply through the Office of Teacher Licensure at Vanderbilt and must meet licensure requirements in effect at the time of their graduation, which may be different from licensure requirements in effect at the time they entered the program. Each year, teacher licensure candidates should consult the current Vanderbilt *Undergraduate Catalog,* the *Undergraduate Guide to Teacher Licensure* published by the Vanderbilt Office of Teacher Licensure, and the *Undergraduate Handbook* published by the Office of Administration and Records.

Honors Program

The Honors Program in Special Education offers qualified majors the opportunity to gain experience in conducting research in collaboration with a faculty mentor. This experience culminates in the writing and presentation of a senior project. Students who major in special education are eligible to apply for the Honors Program in the spring of their sophomore year if they have an overall grade point average of at least 3.5. Students who are accepted into the Honors Program, successfully complete the program, and maintain the required grade point averages, will graduate with Honors in Special Education. Specific information concerning admission to and the requirements of the Honors Program in Special Education is available from Professor Andrea Capizzi, director of undergraduate studies for the Department of Special Education. Students should be

aware that participation in the Honors Program is quite time- intensive and represents a substantial commitment of effort across at least three semesters. Therefore, potential participants must carefully consider whether they are able to, and want to, devote the required time and energy to this program.

B.S. Degree Requirements

Specializations are available in high-incidence disabilities/interventionist (grades K–8/6–12 interventionist licensure), and severe disabilities (grades K–12 comprehensive licensure). Total hours will vary depending on the area of specialization.

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (https://peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-Year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-Year Seminars when open registration begins.

Specializations

The following SPED course is taken as part of the Liberal Education Core, but is also required in each area of specialization.

SPED 1210. Introduction to Exceptionality

The following courses are required in each area of specialization.

SPED 1175. Freshman Seminar

SPED 2310. Managing Academic and Social Behavior

SPED 4950. Student Teaching Seminar

SPED 4954 or 4951. Student Teaching

SEVERE DISABILITIES PROGRAM/COMPREHENSIVE CORE.

SPEDS 2120. Issues in Family Intervention

SPEDS 2450. Augmentative and Alternative Communications SPEDS 2430. Introduction to Language and Communications*

SPEDS 3300. Methods of Instruction for Students with Severe and Multiple Disabilities

SPEDS 3312. Procedures in Transition to Adult Life

SPEDH 3328. Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties: K-8

SPEDH 3338. Teaching Reading to Students with Severe and Persistent Academic and Behavior Difficulties

SPEDS 3330. Characteristics of Students with Severe and Multiple Disabilities

SPEDS 3350. Access to General Education and Teaching Functional Academics

SPEDS 3661. Fieldwork in Special Education: Severe Disabilities

SPEDS 3667. Seminar in Severe Disabilities Fieldwork

SPEDS 3871. Field Work in Special Education: Autism, Intellectual, and Multiple Disabilities

HIGH-INCIDENCE PROGRAM/INTERVENTIONIST CORE.

(Courses are specific to choice of K-8 or 6-12 licensure track.)

SPED 2160. Cultural Diversity in American Education*

SPEDH 3308. Understanding Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3318. Assessment for Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3328. Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties: K-8

SPEDH 3338. Teaching Reading to Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3348. Language and Learning*

SPEDH 3358. Advanced Reading Methods for Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3368. Teaching Middle School Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3378. Teaching High School Students with Severe and Persistent Academic and Behavior Difficulties

SPEDH 3388. Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties 6-12

SPEDH 3777. School and Classroom Supports for Teaching Students with Academic Behavior Difficulties

SPEDH 3871. Field Work in Special Education for Mild/Moderate Disabilities

*Taken as part of the Liberal Education Core

Minors Minor in Special Education

The minor in special education provides students with an opportunity to develop familiarity and expertise in working with children who have learning and social behavior problems. The minor requires 15 hours (15 unique to the minor) as detailed below.

Required (3 hours)

SPED 1210. Introduction to Exceptionality (3)

Electives (12 hours)

SPED 2310/3871. Managing Academic and Social Behavior (fieldwork) [3/1]

SPEDH 3308. Understanding Students with Severe and Persistent Academic and Behavior Difficulties [3]

SPEDH 3328/3871. Teaching Math to Students with Academic and Behavior Difficulties (fieldwork) [3/1]

SPEDH 3338/3871. Teaching Reading to Students with Academic and Behavior Difficulties (fieldwork) [3/1]

SPEDH 3348. Language and Learning [3]

SPED 2160. Cultural Diversity in American Education [3]

SPEDS 2120. Family Intervention [3]

SPED 2340. Introduction to Language and Communication [3]

SPED 3330/3871. Characteristics of Severe and Multiple Disabilities (fieldwork) [3/1]

SPED 3312/3871. Procedures in Transition to Adult Life (fieldwork) [3/1]

SPEDS 3350. Access to General Education and Teaching Functional Academics [3]

ASL 2100. American Sign Language I [3]

ASL 2110. American Sign Language II [3]

SPEDV 3305. Medical & Educational Implications of Visual Impairments [3]

SPEDV 3315. Issues & Trends for Students with Visual Impairments [3]

*Most courses are taught in sequence and have prerequisite courses.

Minor in Instruction in Special Education

The minor in Instruction in Special Education is designed for general education teacher education majors (e.g., Early Childhood Education, Elementary Education, Secondary Education) to prepare them for working with students with disabilities they will encounter in their general education teaching. To be eligible for this minor, students must be enrolled in a teacher education program through the Department of Teaching & Learning. The minor covers academic and behavioral pedagogy and intervention for students with a range of disabilities. The minor requires 19 hours (15 unique to the minor) as detailed below.

SPED 1210: Intro to Exceptionality (3)

SPEDH 3308: Understanding Students with Severe and Persistent Diff. (3)

SPED 2310: Managing Academic and Social Behavior (3)*

SPEDH 3871: Field Work in Mild/Moderate (1)*

SPEDH 3328: Teaching Math to Students with Severe and Persistent Diff. (3)

SPEDH 3358: Advanced Reading Methods for Students with Severe and Persistent Diff. (3)

SPEDS 3358: Access to General Education and Teaching Functional Academics (3)

*Most courses are taught in sequence and have prerequisite courses.

Disability Studies

Disability studies is an alternative major that is available *only* to special education (SPED) majors who discover they are unable to complete required SPED pre-student teaching and/or student teaching capstone after it is too late to complete a different first major. This alternative is initiated by the director of undergraduate studies, with consultation with SPED track directors and the Teacher Preparation Committee. Students completing the disability studies degree do not choose a track.

Special Program in Peabody College

Peabody Scholars Program

First-year students who achieve academic distinction during their first semester at Vanderbilt are invited to

apply to the Peabody Scholars Program. The Peabody Scholars Honors Program was established to offer particularly promising undergraduates at Peabody College opportunities for intellectual adventure, community service, and research. Emphasizing a theme of personal, professional, and civic creativity, the program is designed to foster students' potential by offering breadth through exposing students to a variety of academic and social experiences and depth by engaging in service-learning and independent research.

To graduate with honors through Peabody Scholars, scholars need to earn 24 points within the program. Scholars earn points from a series of required components as well as optional enrichment programming. All freshman Peabody Scholars participate in a 3-credit-hour Honors Seminar during the spring semester of their first year. In the sophomore year, scholars work together on a meaningful immersive service project in the local community. Each Peabody Scholar is offered a summer stipend (between sophomore and junior years) to support engagement in an individual service or intensive research project (either domestic or abroad). In the junior year, scholars engage in independent research projects with a faculty member. Senior scholars participate in both scholarly and cultural events. The Peabody Scholars Program also offers professional development, networking, and mentoring. The full list of current programming is available on the program website. In sum, the Peabody Scholars Program offers a rich array of enrichment experiences and opportunities.

Peabody freshmen may apply for the Peabody Scholars Program in the fall of their first semester at Vanderbilt. Selections will be made prior to the beginning of the spring semester. To be accepted into the program, students must have a first-semester GPA of 3.6. To remain in good standing in the program, students must maintain a minimum grade point average of 3.0. Further information on the Peabody Scholars Program may be obtained from Professor Megan Saylor in the Psychology and Human Development Department.

Special Programs for Undergraduates: Air Force Reserve Officer Training Corps (AFROTC)

The Air Force Reserve Officer Training Corps (AFROTC) provides pre-commission training for college men and women who desire to serve as commissioned officers in the United States Air Force and Space Force. When combined with the academic disciplines offered at the college level, the program provides the student a broad-based knowledge of management, leadership, and technical skills required for a commission and subsequent active-duty service in the Air Force or Space Force.

Graduates are commissioned as Second Lieutenants and will enter active duty. The main objectives of producing officers through the AFROTC program are (1) to procure officers with a broad educational base, (2) to provide a basic military education for college students, (3) to teach fundamentals and techniques of leadership, management, and decision making, and (4) to develop, in conjunction with other academic disciplines, individual character and attributes required of a commissioned officer in the United States Air Force.

AFROTC Program/Scholarships

Enrolling in AFROTC. Please go to www.tnstate.edu/afrotc for application deadlines. Vanderbilt University students may participate in the Air Force ROTC program in cooperation with Tennessee State University. Call Detachment 790, (615) 963-5980, and ask for a Cross-Town Application. Mail this application and your official transcripts with your immunization records back to Detachment 790. The program provides training and education that will develop skills and attitudes vital to the professional Air Force officer.

Students who participate in the Air Force ROTC program must be enrolled at Vanderbilt University. The student is also jointly enrolled as a TSU student and participates in Aerospace Studies (Air Force ROTC) at TSU. For more information, contact the unit admissions officer at (615) 963-5931/5979 or check our website at www.tnstate.edu/afrotc.

Currently there is no charge for tuition to take Air Force ROTC. The grade and credit can transfer back for graduation as indicated below.

Curriculum. The General Military Course (GMC) is composed of the first four semesters of aerospace studies (AERO) and is for freshmen and sophomores. The Professional Officer Course (POC) constitutes the final four semesters of AFROTC study and enrolls juniors and seniors. The Leadership Lab is required.

General Benefits

All students enrolled in the AFROTC program are provided textbooks and uniforms at no expense. Professional Officer Course (POC) students (juniors and seniors) and all scholarship students receive a monthly subsistence allowance which will increase each year the student remains in the program. All AFROTC students that remain in the program until their junior year, will contract with Air Force ROTC and receive a scholarship. Additionally, Vanderbilt University offers a generous stipend to all AFROTC cadets.

Sponsored Activities

Professional Development Training is provided during the summers to cadets interested in enhancing their knowledge of Air Force leadership and management opportunities, increasing their cultural awareness, and learning about specific career specialties.

AFROTC Flight Orientation Program is designed to allow all cadets, regardless of intended career field, the chance to fly as front seat or back seat passengers in Civil Air Patrol aircraft. Everyone can experience the joy of flight.

Aerospace Studies Courses at TSU FRESHMAN YEAR

Heritage and Values of the United States Air Force and Space Force (no credit at Vanderbilt)

A survey course designed to introduce students to the United States Air Force and Space Force. This class provides an overview of the role of military in U.S. society, military history, officership, professionalism, core values, career opportunities, and customs/courtesies. Freshman Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing followership experiences.

SOPHOMORE YEAR

Team and Leadership Fundamentals (transfers as GNEL 2000)

A course that focuses on laying the foundation for teams and leadership. The topics include; development/deployment of air power, leadership and quality principles, ethics and values, leadership development based on student participation in group problem solving, as well as oral/written communication development. The purpose of this course is to instill a leadership mindset and to motivate sophomore students to transition from an AFROTC cadet to AFROTC officer candidate. Sophomore Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing followership experiences.

JUNIOR YEAR

Leading People and Effective Communication (transfers as HOD 2051)

A course that teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. A mandatory junior year Leadership Laboratory provides advanced leadership experiences and the opportunity to apply the leadership and management principles of this course.

SENIOR YEAR

National Security Affairs/Preparation for Active Duty (no credit at Vanderbilt)

This course is designed for college seniors and provides them with the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty. A mandatory senior year Leadership Laboratory provides advanced leadership experiences and the opportunity to apply the leadership and management principles of this course.

Special Programs for Undergraduates: Army Reserve Officers' Training Corps (ROTC)

The Army Reserve Officers' Training Corps (ROTC) is a sequential and progressive academic program that provides pre-commission training for college-educated men and women who desire to serve as commissioned officers in the active Army, Army Reserve, and Army National Guard. As the Army's largest commissioning source, it fulfills a vital role in providing mature young men and women for leadership and management positions in an increasingly technological Army. Admission is open to both men and women who meet mental, moral, and physical qualifications.

Training goes beyond the typical college classroom and is designed to build individual confidence and self-discipline, instill values and ethics, and develop leadership skills. The course load consists of one course per semester. Each succeeding year will address course topics in greater depth as students receive feedback on their leadership style and assume positions of greater responsibility within the program. Graduates are commissioned as Second Lieutenants and will enter active duty with follow-on employment in the Army Reserves, National Guard, or active duty. Educational delays may be granted for graduates who desire to pursue advanced degrees prior to entry on active duty.

All university students in the Nashville area may participate in the Army ROTC program at Vanderbilt University. While Vanderbilt serves as the host university, students at partnership schools are not charged additional tuition to take military science courses. Grades are transferred back to each university and added to the students' transcripts.

Scholarships. Students can earn merit scholarships in several ways. High school seniors and graduates compete for four- year scholarships that are determined by local competition among Vanderbilt applicants. Although determined locally, the application process is centrally managed. Scholarship students receive financial benefits that cover the cost of full tuition scholarships each year, an annual $1,200 book allowance, all uniforms, and a monthly tax-free stipend of $420. Vanderbilt University also provides Vanderbilt ROTC scholarship students an additional $6,000 tuition grant each year for room and board.

Students who are not on scholarship receive the monthly stipend during their junior and senior years. All students enrolled in the Army ROTC program are provided textbooks and uniforms at no expense. Contracted non- scholarship students also receive the monthly stipend $420. For more information, see the website at goarmy.com/rotc.html.

Summer training. Students have the opportunity to attend several training events over the summer.

Advanced Camp — This five-week leadership exercise at Fort Knox, Kentucky, is a commissioning requirement. This is normally done between the junior and senior years. Travel, room, and board are provided free, and cadets are paid approximately $700.

Cultural Understanding and Language Program (CULP) Internships — Students are encouraged to spend a semester, special or summer session in academic studies abroad if feasible. Special incentives are available to further attract qualified students to these valuable programs.

Cadet Troop and Leadership Training Internships (CTLT) — CTLT Internships are leadership development opportunities for students who are placed with military organizations throughout the world to gain perspective and understanding on the role of the military officer.

Cadet Professional Field Training (CPFT) — Airborne, Air Assault, Mountain Warfare, Robin Sage (U.S. Special

Forces), Helicopter Flight Training, and Sapper.

Other training opportunities exist for qualified applicants who are interested.

Commissioning and career opportunities. A commission in the U.S. Army is a distinctive honor earned through hard work, demonstrated commitment, and a desire to serve the nation. Post-graduate military education, usually starting within six months of graduation and commissioning and continuing through the officer's service career, begins with the basic officer leadership course followed by officer basic course that qualify new lieutenants in their specific branch of service. Education delays are available for critical specialties requiring postgraduate civilian education such as law and medical degrees.

Course credit. During the four-year program, Army ROTC students complete eight courses of military science plus associated labs. Academic credit varies by university.

Vanderbilt University College Credit: All AROTC courses count toward elective credit. See course descriptions below.

Information. Inquiries regarding enrollment in the Army ROTC program should be made to the Army ROTC Admissions Officer at (615) 322-8550 or (800) 288-7682 (1-800-VUROTC). Also see vanderbilt.edu/army.

Military Science Department

COMMANDING OFFICER Christine N. Kendzior

MILITARY INSTRUCTORS Christine N. Kendzior, Jermaine Denny, Ethan Orr

Military Science Courses

During the four-year program, Army ROTC students complete eight courses of military science plus associated labs, and must complete an American Military History course and Advanced Camp.

FIRST YEAR

MS-PC 1210. Leadership and Personal Development. Leadership is one of the most compelling topics of our time, and might be one of the most important attributes for effectiveness in all levels of human endeavor. The success of one of the most admired and respected institutions in our country, the military, is founded upon the understanding and effective application of leadership, and the development of leaders. This course introduces students to the personal challenges and competencies that are critical to effective leadership. The focus is on developing basic knowledge and comprehension of leadership attributes and core leader competencies in a universal setting and exploring potential applications of these principles and practices at Vanderbilt, in the military and in the corporate world. [1]

MS-PC 1210L. Leadership and Personal Development Lab. Leader development is a continuous process of training, assessment and feedback with the goal of instilling and enhancing desirable behavior in individuals and organizations. Within the military science curriculum, this process is called the Leadership Development Program (LDP), modeled after the principles spelled out in Field Manual 22-100, *Army Leadership,* and is standardized both on campus and in Advanced Camp environments. The flexible methodology of LDP accommodates personalized, individual development at all levels of proficiency throughout the officer educational experience, from program entry to commissioning. The LDP includes basic leadership training, periodic assessment and counseling at both team and individual levels by experienced observers. Trends and deficiencies are identified and addressed with retraining and reassessment in a continuous cycle. Effective leader development is progressive, building on lessons learned and maximizing individual potential. This course introduces students to the leadership development process by providing structured leadership opportunities in a variety of training settings. Student performance in leadership roles is assessed and notable strengths and weaknesses are identified. A plan for improvement is discussed in detail during one-on-one counseling sessions.

[1]

MS-PC 1230. Leadership and Personal Development II. What motivates others to follow a person is intriguing, inspiring and alluring. Through routine observation, we learn from leaders regardless of the setting (military, business, education, etc.). Leadership and Personal Development II provides an overview of leadership fundamentals such as setting direction, problem solving, listening and providing feedback. You will explore dimensions of leadership, values, attributes, skills, and actions in a military context through practical, hands-on, and interactive exercises. [1]

MS-PC 1230L. Leadership and Personal Development II Lab. Leader development is a continuous process of training, assessment and feedback with the goal of instilling and enhancing desirable behavior in individuals and organizations; this process is called the Leadership Development Program. Effective leader development is progressive, building on lessons learned and maximizing individual potential. This course introduces students to the leadership development process by providing structured leadership opportunities in a variety of training settings. A plan for improvement is discussed in detail during one-on-one counseling sessions. [1]

SOPHOMORE YEAR

One American Military History course, chosen from the following:

HIST 1730. The U.S. and the Cold War.

HIST 1740. The U.S. and the Vietnam War.

HIST 2720. World War II.

MS-PC 1510. American Military History: Principles of War.

PSCI 3272W. The War in Iraq, 2003–2011.

MS-PC 2150. Foundations of Leadership. MS-PC 2150 introduces the process of understanding and defining leaders in order to develop leadership skills appropriate for future commissioned Army officers. This class is broken down into five key skills development areas: 1) values and ethics, 2) personal development, 3) officership, 4) leadership, and 5) tactics and techniques. The class emphasizes individual leadership values and characteristics with a focus on Leadership Theory and Interpersonal Communications, Army Values, Troop Leading Procedures, Problem Solving, and Team Building in a military environment. [2]

MS-PC 2150L. Foundations of Leadership Lab. This lab builds upon the classroom topics in MS-PC 2150 and introduces the process of understanding and defining leaders in order to develop leadership skills appropriate for future commissioned Army officers. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. The lab emphasizes individual leadership values and characteristics with a focus on leadership theory and interpersonal communications, Army values, troop leading procedures, problem solving, and team building in a military environment. [1]

MS-PC 2160. Foundations of Tactical Leadership. MS-PC 2160 builds upon MS-PC 2150. The class is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During this class we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [2]

MS-PC 2160L. Foundations of Tactical Leadership Lab. MS-PC 2160L builds upon MS-PC 2150 and MS-PC 2150L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the

lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

JUNIOR YEAR

MS-PC 3110. Leadership and Problem Solving. This course builds upon your skills developed in MS-PC 2160 and continues to develop leadership, officership skills, self-awareness, and critical thinking skills through challenging scenarios related to small-unit tactical operations. Cadets receive systematic and specific feedback on their leadership values, attributes, skills, and actions. Prerequisite: MS-PC 1210, 1230, 2150, and 2160. [3]

MS-PC 3110L. Leadership and Problem Solving Lab. MS-PC 3110L builds upon MS-PC 3110 and MS-PC 2150L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

MS-PC 3120. Applied Team Leadership. Challenging scenarios related to small-unit tactical operations are used to develop self-awareness and critical thinking skills. Students receive systematic and specific feedback on their leadership values, attributes, skills, and actions. Prerequisite: MS-PC 3110. [3]

MS-PC 3120L. Applied Team Leadership Lab. MS-PC 3120L builds upon MS-PC 3120 and MS-PC 3110L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

SUMMER BETWEEN JUNIOR AND SENIOR YEAR

Cadet Leader Course (1 Cr) — All students pursuing a commission as an Army Officer must complete Advanced Camp during the summer between their junior and senior year. Students may apply for 1 credit hour of academic credit with the designation of interdisciplinary internship (INDS 3881). This course may be taken once and repeated once for a maximum of 2 credits on a Pass/Fail basis only.

SENIOR YEAR

MS-PC 4150. Leadership and Ethics. Students develop proficiency in planning, executing, and assessing complex operations, functioning as a member of a staff, and providing leadership-performance feedback to subordinates. Students are given situational opportunities to assess risk, make sound ethical decisions, and provide coaching and mentoring to fellow ROTC Cadets. Prerequisite: MS-PC 3120. [3]

MS-PC 4150L. Leadership and Ethics Lab. MS-PC 4150L builds upon MS-PC 4150 and MS-PC 3120L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

MS-PC 4160. Leadership in a Complex World. Students develop proficiency in leadership and management skills required of junior officers serving in military companies. The course further explores the dynamics of leading in complex situations of the contemporary operating environment and applies a cultural lens to problem solving. Students continue to gain leadership experience through situational opportunities, organizational projects, and coaching and mentoring fellow ROTC Cadets.

MS-PC 4160L. Leadership in a Complex World Lab. MS-PC 4160L builds upon MS-PC 4160 and MS-PC 4150L. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. During the lab we will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

Special Programs for Undergraduates: Immersion Vanderbilt

Immersion Vanderbilt ensures that all undergraduates have access to diverse forms of learning through experiential opportunities. This bipartite program asks each student to first develop and complete an immersive experience and then a culminating project. Students engaged in Immersion Vanderbilt are supported by both faculty and the office of Experiential Learning and Immersion Vanderbilt. Participation in Immersion Vanderbilt is a requirement that applies to all undergraduates. Some majors, minors, programs of study, and classes are approved to satisfy the immersive experience, culminating project, or both for Immersion Vanderbilt. A student may complete one or more experiential learning activities.

To complete the Immersion Vanderbilt requirement, students engage in one or more experiential learning activities including but not limited to research, internships, study abroad, community and civic engagement, innovation and design, and creative arts. Students are guided by a faculty or staff member who acts as their experience mentor. If a student is engaging in research, a Vanderbilt faculty member must act as the adviser/experience mentor. As part of the program, students are prompted to reflect upon their experiences and the creation of their culminating project. The goal of the mentoring and self-reflection process is to ensure the student gains a deeper understanding of the experience and how it is meaningful to their own goals.

After students complete the immersive experience(s) and self-reflection, they identify and meet with their Immersion faculty adviser to brainstorm, plan, and execute their culminating project. Students are encouraged to develop their culminating project based on their immersive experience(s), but this is not required–i.e., the culminating project can relate to one of the immersive experiences already completed or to a new topic. Examples of culminating projects include research presentations, art shows, performances, design projects, videos, websites, capstones, and senior theses, among others. Students create their culminating projects under the guidance of their Immersion Vanderbilt faculty adviser, who also assesses the project and marks it as complete.

When the Immersion Vanderbilt faculty adviser approves the culminating project submission, the Immersion Vanderbilt requirement is complete and cannot be changed. Completion of the Immersion Vanderbilt graduation requirement is noted on the student’s degree audit, and the experiential pathway and Immersion Vanderbilt project title are added to the student’s transcript. The experiential pathways include: 1) Research; 2) Study Abroad; 3) Innovation, Arts, & Design; 4) Civic & Community Engagement; 5) Leadership & Professional Development; and 6) Internships. The project title that appears on the transcript is created by the student in consultation with their faculty adviser. https://www.vanderbilt.edu/immersion/

Special Programs for Undergraduates: Interdisciplinary Centers, Institutes, and Research Groups

Vanderbilt is home to more than 85 centers and institutes that work to tackle major challenges and meet important societal needs by bringing together faculty from a broad range of disciplines and producing cutting-edge research. Below is a sampling of Vanderbilt's interdisciplinary initiatives. For more information, see research.vanderbilt.edu/centers-and-institutes-at-vanderbilt.

The Center for Latin American, Caribbean, and Latinx Studies fosters research and public engagement that center on populations that cross and re-cross borders constructed by geography, linguistics, class, race, and gender. as.vanderbilt.edu/clacx/

The Frist Center for Autism and Innovation at Vanderbilt University School of Engineering brings engineers,

business scholars, and disabilities researchers together with experts in neuroscience and education to understand, maximize, and promote neurodiverse talent and to respond to opportunities for innovation in technology and in workplace practices. From a strengths-based – as opposed to deficit-based – understanding of autism and neurodiversity, the Center sees opportunities for innovation in technology and in workplace practices. vanderbilt.edu/autismandinnovation/

The Max Kade Center for European and German Studies fosters an international perspective on issues relating to Europe and transatlantic relations and seeks to prepare students for international careers or advanced study. as.vanderbilt.edu/europeanstudies/

The Robert Penn Warren Center for the Humanities promotes interdisciplinary research and study in the humanities, social sciences and natural sciences. Members of the Vanderbilt community representing a wide variety of specializations take part in the center's programs, which are designed to intensify and increase interdisciplinary discussions of academic, social, and cultural issues. vanderbilt.edu/rpw_center/

The Vanderbilt Brain Institute promotes and facilitates the discovery efforts of Vanderbilt neuroscientists, the training of undergraduate and graduate students, and the coordination of public outreach in brain sciences. Research endeavors in the VBI include more than five hundred faculty, students, and staff from departments, centers, and institutes across campus who engage in neuroscience-directed research, training, and clinical service. medschool.vanderbilt.edu/brain-institute/

The Vanderbilt Institute for Surgery and Engineering creates, develops, implements, and evaluates solutions to complex interventional problems. Physicians, engineers, and computer scientists work together to improve patient care with surgical innovation through engineering. Central to the mission of the institute is the translation of methods, techniques, and devices from the laboratory to the patient. vanderbilt.edu/vise/

The Vanderbilt Institute for Global Health builds capacity through interdisciplinary global health education and training programs, conducts implementation science and research, and provides technical assistance service to government and civil sector organizations in other countries. As a leader in international education and research, VIGH seeks to improve health and well-being of people living in low-resource settings. vumc.org/global-health/

The Vanderbilt Institute for Integrative Biosystems Research and Education fosters and enhances interdisciplinary research in the biophysical sciences and bioengineering at Vanderbilt, integrated with a strong focus on undergraduate, graduate, and postdoctoral education. VIIBRE's mission is to invent the tools and develop the skills that are required to understand biological systems across spatiotemporal scales. vanderbilt.edu/viibre/

The Vanderbilt Institute of Chemical Biology provides research and training in the application of chemical approaches to the solution of important biomedical problems, harnessing the power of chemistry to improve human health. medschool.vanderbilt.edu/vicb/

The Vanderbilt Institute of Nanoscale Science and Engineering is a multi-disciplinary institute that supports research, education, and K-12 outreach across science, engineering, and medicine. Housed in the Engineering and Science Building, VINSE facilities comprise a cleanroom with state-of-the-art nanofabrication and microfluidics and an adjoining materials characterization laboratory. VINSE also houses an advanced imaging suite featuring electron microscopy (EM), cryo-EM and atomic force microscopy, all of which can address both materials and biological research. VINSE researchers are using nanoscience and nanotechnology to enable new discoveries across a broad range of areas spanning drug delivery, cellular communication, meta-optics, sensors, miniature soft robots, and fuel cell membranes. vanderbilt.edu/vinse/

The Vanderbilt Kennedy Center for Research on Human Development facilitates discoveries and best practices that make positive differences in the lives of persons with disabilities and their families through research, training, services, and dissemination. Nationally, it is among fourteen Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Centers, sixty-seven national University Centers for Excellence in Developmental Disabilities, fifty-two Leadership Education in Neurodevelopmental Disabilities training programs, and includes the Treatment and Research Institute for Autism Spectrum Disorders. Research, practicum, and clinical experiences are available to trainees. vkc.vumc.org/vkc/

The Vanderbilt University Institute of Imaging Science aims to support and integrate advances in physics, engineering, chemistry, computing, and other basic sciences for the development and application of new and enhanced imaging techniques to address problems and stimulate new research directions in biology and medicine, in health and disease.

The Wond'ry, Vanderbilt's Center for Innovation and Design, serves students from all 10 schools and colleges at Vanderbilt by providing opportunities to learn the process of innovation and develop creative confidence. Located adjacent to the Engineering and Science Building, this three-story, 13,000-square foot space is a destination for creativity, invention, entrepreneurship, design thinking, social impact, and making. At the Wond'ry, you can access programming, prototyping tools, events, pitch and design competitions, and even receive microgrant funding all while working with a highly accomplished group of mentors to move your ideas from concept to reality. You can find students from all academic backgrounds, disciplines, and experience levels at the Wond'ry developing innovative and creative solutions that change the world. vanderbilt.edu/thewondry/

Special Programs for Undergraduates: Joint and Dual Programs

Vanderbilt undergraduates in Blair School of Music, School of Engineering, and Peabody College take their background liberal arts and science courses in the College of Arts and Science—and may take other elective courses in these areas as individual degree programs will allow. In like manner, students in the College of Arts and Science may take courses in the other schools for regular credit toward the liberal arts degree. Students may earn a second major or minor outside of their school, as well.

Several dual programs, combining undergraduate study with work toward a master's degree, may facilitate possible saving a year in the time required to complete both degrees. Details of the various dual programs will be found in the appropriate school sections of this catalog.

Special Programs for Undergraduates: Naval Reserve Officers' Training Corps (NROTC)

The Naval Reserve Officer Training Corps (NROTC) unit at Vanderbilt conducts the Naval Officer Education program.

Challenging academic courses and experience-building events prepare a select group of highly accomplished students for the opportunity to serve their country as a Navy or Marine Corps officer and receive an education. The primary focus of the NROTC program is to develop the most capable leaders possible by building upon the academic strength of Vanderbilt and providing essential military and leadership education.

Students participate in the NROTC unit in the scholarship program, the college program, or the naval science program. College Program students take the prescribed naval science course each semester, participate weekly in naval science lab, and engage in summer training programs after each academic year. The NROTC College Program is identical to the scholarship program except for tuition financial benefit and that students only participate in summer training upon completion of their junior academic year. Also, any Vanderbilt student may take any or all of the naval science courses without participating in naval science lab or summer training.

Scholarship students receive tuition, fees, uniforms, $375 per semester for textbooks, and a monthly stipend beginning at $250 for freshmen and increasing to $400 for seniors. Vanderbilt may provide scholarship students

with up to a $6,000-per-year stipend toward room and board. College Program students are provided uniforms, textbooks for naval science courses, and a monthly stipend of $350 upon commencement of their junior year with approval by higher authority based on academic performance and military aptitude.

Scholarships. Students can earn scholarships in several ways. Four-year scholarships are determined by national competition among high school seniors and graduates. Based on the national ranking, students may be awarded a scholarship that covers full tuition. To be eligible, applicants must have less than 30 semester hours of college credit. College Program students can also be nominated for three- and two-year scholarships by the NROTC unit. These nominations are based on the students' academic and military performance at the college level. Sophomores not enrolled in the College Program are eligible to apply for the two-year NROTC scholarship program. This is a national competition and application is made through the NROTC unit.

Service obligation. For most students at the beginning of their sophomore year, should they choose to continue with the NROTC program, Navy option scholarship students incur a minimum service obligation of five years active duty, and Marine option scholarship students incur a minimum service obligation of four years of active duty, to be served upon graduation or withdrawal from the program. College Program students incur a three-year active duty commitment upon graduation or withdrawal from the program. Additional requirements may be required for specific job assignments.

Summer training. Summer training for three to four weeks is conducted aboard naval vessels and naval shore stations after each of the first three academic years. Scholarship students are normally required to participate each year. All scholarship and College Program midshipmen are required to participate in summer training prior to their final academic year.

Course credit. During the four-year program, NROTC Navy-option students are required to complete eight courses (24 hours) of naval science, and Marine-option students are required to complete six courses (18 hours) of naval science. Academic credit awarded varies by course and is outlined in the course descriptions below.

Required Courses for Navy/Marine Scholarship. The following courses are required for students on scholarship:

- Calculus (Navy option only) (6 credits minimum): Mathematics 1200–1201, or 1300–1301 completed by the end of the sophomore year.
- Physics (Navy option only) (6 credits): 1501–1502 or 1601–1602 completed by the end of the junior year.
- English (6 credits): Two semesters of any English course or courses containing a designated writing component.
- American History/National Security Policy (3 credits): Contact the Naval ROTC unit for a listing of courses fulfilling this requirement.
- World Culture/Regional Studies (Navy option only) (3 credits): Contact the Naval ROTC unit for a listing of courses fulfilling this requirement.

Information. Inquiries regarding enrollment in the Naval ROTC program should be made to the Naval ROTC unit recruiting officer at (615) 322-2671, or by contacting a local Navy or Marine Corps recruiting station.

Admission to the program is open to both men and women. Physical qualification to Naval Service standards is required.

Naval Science

COMMANDING OFFICER Brian Erickson

EXECUTIVE OFFICER Brian Fremming

NAVAL INSTRUCTORS Joseph London, Renny Ignacio

MARINE INSTRUCTOR Ronnie Fielder

Naval Science Courses

For Navy-option NROTC students, the following naval science courses are required for commissioning: NS 1100, HIST 1690, NS-PC 2410, ES 3231, ES 3230, ES 3232, ES 4233, and NS-PC 4242 and their appropriate labs. For Marine-option NROTC students, the following naval science courses are required for commissioning: NS 1100, HIST 1690, NS-PC 2410, HIST 1691, HIST 1693, and NS-PC 4242 and their appropriate labs.

FIRST YEAR

NS 1100

HIST 1690

SOPHOMORE YEAR

NS-PC 2410

ES 3231

JUNIOR YEAR

ES 3230

ES 3232

SENIOR YEAR

ES 3233

NS-PC 4242

The Marine option courses listed below are taught in the spring, rotating on a yearly basis. They are taken in the sophomore and junior year.

HIST 1691

HIST 1693

Special Programs for Undergraduates: Preparation for Other Professional Careers

Architecture, Law, and Journalism

Undergraduate students expecting to pursue architecture, law, or journalism at the graduate level may earn any major at Vanderbilt, but should be aware of graduate field requirements. See the chapter on Special Programs in the College of Arts and Science section of this catalog.

Teacher Licensure Programs

Vanderbilt offers programs through Peabody College leading to licensure for teaching. Students seeking teacher licensure should refer to the Peabody College section of this catalog. Students seeking licensure in music should see the Blair School of Music section of this catalog.

Undergraduate students in the College of Arts and Science, Blair School of Music, the School of Engineering, or Peabody College who are seeking licensure in early childhood, elementary, or secondary education must complete a major outside of teacher education and a Peabody College education major. Licensure in special education fields does not require a second major.

Special Programs for Undergraduates: Preparations for Careers in the Health Professions

Study programs leading to careers in medicine, dentistry, veterinary science, pharmacy science, and many related areas are overseen by the Health Professions Advisory Office (HPAO).

Medicine

There is no formal prehealth program of courses at Vanderbilt. Each student should plan a program to meet individual requirements. Prehealth studies should include courses that are necessary to meet professional school admission requirements and to satisfy the requirements of the student's undergraduate degree program. Students interested in prehealth studies should plan their undergraduate programs in consultation with HPAO staff and their primary academic adviser. Additional information is available at vanderbilt.edu/hpao.

Students are encouraged to consult the directory *Medical School Admission Requirements: United States and Canada,* published online by the Association of American Medical Colleges, as a guide to planning their undergraduate programs. A link to the guide can be found on the HPAO website.

See the *Vanderbilt University School of Medicine Catalog* for the official statement on minimum requirements for admission to Vanderbilt University School of Medicine.

Nursing

Pre-nursing students enrolled in the College of Arts and Science or Peabody College are strongly encouraged to apply for admission to the School of Nursing's M.S.N. program by November 1 of their senior year at Vanderbilt.

Admission to the Graduate Nursing Program. Students are subject to all nursing school admission requirements, and no student is assured of admission to the School of Nursing. Prior to admission to the School of Nursing, applicants must have completed prerequisite courses, including the following:

1. A required introductory course in statistics that includes descriptive and inferential statistical techniques; Mathematics 1010–1011, Mathematics 2820, or Peabody Psychology 2110 will fulfill this requirement.
2. *11 hours of natural science courses.* Courses in human anatomy and physiology (MHS 3101 and 3102) and microbiology (MHS 1500) are required. Human and Organizational Development 1250 (Applied Human Development) or Peabody Psychology 1250 (Developmental Psychology) will fulfill the requirement.
3. 2 hours of nutrition are required. MHS 1600, Introduction to Nutritional Health, fulfills the requirement for nutrition.

Admission to the School of Nursing is competitive. Consult the School of Nursing catalog for specific requirements and admission procedures. Students are encouraged to write or call the School of Nursing's Office of Admissions, Room 170, 461 21st Avenue South, Nashville, Tennessee 37240, (615) 322-3800, or visit the website, nursing.vanderbilt.edu, for further explanation of pre-nursing and graduate nursing programs.

Special Programs for Undergraduates: Study Abroad

Vanderbilt offers study abroad opportunities for all undergraduate students from the College of Arts and Science, Blair School of Music, School of Engineering, and Peabody College. Programs are available for the semester, full academic year, summer, and Maymester. Students may study abroad any time after their first year at Vanderbilt. Studying abroad during senior year requires special approval from the student's home college/school and may delay graduation. Transfer students can apply to study abroad after completing their first semester at Vanderbilt. Vanderbilt students have opportunities to study in more than 40 countries around the globe through study abroad programs led by Vanderbilt faculty and additional programs provided by agreements with other universities and organizations.

Study abroad programs are open to students in good academic, financial, and disciplinary standing, with an overall grade point average of 2.700 or better, or a grade point average at this level in each of the two most recent semesters. Many programs require a higher grade point average and, where applicable, the student's application must also be approved by the appropriate host university, institute, or consortium. Study abroad programs that are managed by Vanderbilt, such as Maymester courses, offer direct Vanderbilt credit. Approved programs offered by Vanderbilt's exchange, consortium, or provider partners are articulated as Vanderbilt Study Abroad/Away Credit. Grades awarded are reflective of the local grading practices of the host institution. Students are encouraged to discuss the grading bases and practices of their specific program with their study abroad

adviser prior to departure. Hours earned through these programs and approved in advance by the appropriate department serve to satisfy the residence requirement (refer to the relevant Academic Regulations chapter for the home school). Students are not eligible to earn Dean’s List honors for the semester in which they study abroad.

Study abroad programs offered via the Office of Experiential Learning and Immersion Vanderbilt are eligible to fulfill Immersion Vanderbilt's immersive experience requirement. All students who study abroad should submit an Immersive Experience Declaration form with the Office of Experiential Learning and Immersion Vanderbilt.

Students studying on Vanderbilt programs or Vanderbilt-approved programs for the academic year or semester are eligible for federal and Vanderbilt University financial aid, including merit scholarships but excluding work-study. All participants in approved Study Abroad programs are billed through Vanderbilt Student Accounts and can expect to pay Vanderbilt tuition, and a program fee.

If a program has been approved by Vanderbilt, students must enroll in the program via the Office of Experiential Learning and Immersion Vanderbilt. In no case, after matriculating at Vanderbilt, may a student apply to participate in an approved program for transfer credit through a different university, or through an external agency, and then seek to transfer that credit into Vanderbilt. Information is available from the Office of Experiential Learning and Immersion Vanderbilt, Suite 109 in the Student Life Center, immersion.vanderbilt.edu.

Vanderbilt-Approved Programs

Through arrangements with external institutions and organizations, Vanderbilt students may select from a wide range of study abroad opportunities. Vanderbilt-approved study abroad programs can be sorted into three general program types: Study Center programs; Direct University Enrollment programs; and Study Center and Direct University Enrollment Hybrid programs.

Study Center programs tend to serve primarily U.S. study abroad students, and often have a thematic focus or specialty, such as language immersion, research, or experiential learning.

Direct University Enrollment programs allow students to enroll directly in a university abroad and study alongside local and other international students. Direct University Enrollment programs provide access to a wide variety of coursework across multiple disciplines. Many of these programs are facilitated by a partner organization, which coordinates housing and other services as well as facilitates integration with the host university.

Study Center and Direct University Enrollment Hybrid programs combine the two program types. Students are based at a program center with other study abroad students and have the option, or requirement, to take courses at one or more local universities.

Special Programs for Undergraduates: Undergraduate Business Minor

Vanderbilt University offers a transinstitutional, interdisciplinary undergraduate minor in business that is jointly administered by the College of Arts and Science, Blair School of Music, the Owen Graduate School of Management, Peabody College, and the School of Engineering. The undergraduate business minor requires 16.5 credit hours and is directed by Gary Kimball.

The undergraduate business minor (BUS) provides students with a rigorous exposure to the fundamental business disciplines of financial reporting, finance, organizational behavior, marketing, and operations. The undergraduate business minor also intentionally grounds the study of business within the liberal arts tradition, allowing students to understand the context within which business operates in society.

Students declaring the undergraduate business minor (BUS) may not also declare either of the minors in human and organizational development (HOD) or engineering management (ENGM). Students electing the undergraduate business minor must follow academic regulations regarding minors in their home school, including but not limited to regulations regarding unique hours.

Four of the five mandatory courses in the undergraduate business minor require one of the following prerequisites, which may be completed in any order or simultaneously; Advanced Placement (AP) or International Baccalaureate (IB) credit may be used to satisfy the Microeconomics prerequisite.

1. Introductory Microeconomics: ECON 1020
2. Introductory Statistics: One of BME 2400, ECON 1500, ECON 1510, MATH 1011, MATH 2810, MATH 2820, MATH 2821, PSY 2100, PSY-PC 2110, or SOC 2100

The Undergraduate Business Minor

The undergraduate business minor (BUS) requires 16.5 credit hours of course work, distributed as follows:

1. 7.5 credit hours of required course work composed of 5 half-semester courses listed below. While not required, it is recommended that students complete the five required courses prior to fulfilling the elective requirement. Students may not concurrently enroll in any of the five required courses.

BUS 1100	Essentials of Financial Reporting	(1.5 hours)
BUS 1300	Principles of Finance	(1.5 hours)
BUS 1400	Organizational Behavior	(1.5 hours)
BUS 1600	Principles of Marketing	(1.5 hours)
BUS 1700	Managing Operations	(1.5 hours)

1. At least 6 credit hours of courses selected from one or more of the seven “BUS pathways” (entrepreneurship, ethics, finance and accounting, marketing and advertising, operations, organizational effectiveness, and strategy).
2. At least 3 credit hours of courses selected either from the “BUS pathways” or from the “business-in-society” electives. “Business-in-society” electives represent business-related disciplines in the liberal arts tradition, and are listed following the “BUS pathway” electives below.

BUS Pathways

Entrepreneurship

BUSA 2300, Entrepreneurship: The Business Planning Process

BUSA 3300, Entrepreneurial Challenge

BUSA 3841, Directed Study

ENGM 3600, Technology-based Entrepreneurship

SOC 3206, Creativity and Innovation in Society

Ethics

BUSA 2160, Corporate Social Responsibility

HODC 3232, Ethics for Human Development Professionals

PHIL 1100, Introduction to Business Ethics

PHIL 3609, Ethics and Business

Finance and Accounting

BUSA 2600, Managerial Accounting

BUSA 2705, Corporate Finance

BUSA 3605, Financial Reporting and Analysis

BUSA 3700, Investment Analysis

BUSA 3705, Financial Management

BUSA 3710, Corporate Valuation

BUSA 3841, Directed Study

ECON 2300, Money and Banking

ECON 3200, Public Finance

ECON 3300, Financial Instruments and Marketing

ECON 3610, International Finance

Marketing and Advertising

BUSA 2205, Business Development

BUSA 3200, Advanced Marketing

BUSA 3841, Directed Study

ENGM 3200, Technology Marketing

Operations

BUSA 2200, Data Analysis and Presentation

ENGM 3000, Enterprise Systems Design

ENGM 3650, Operation and Supply Chain Management

ENGM 3700, Program and Project Management

Organizational Effectiveness

CMST 2120, Business Communication

HODI 3240, Effectiveness in International For-Profit Organizations

HODL 3204, Leadership Theory and Practice

HODL 3224, Analyzing Organizational Effectiveness

HODL 3234, Advanced Organizational Theory

HODL 3244, Introduction to Human Resource Management

HODL 3254, Human Resource Management

HODL 3264, Evidence-based Practice in Organizations

HODL 3274, Managing Organizational Change

HODL 3314, Strategic Planning and Project Management

PSY 3605, Industrial and Organizational Psychology

SOC 3615, Human Behavior in Organizations

Strategy

BUSA 2150, Leading Business Through Crisis

BUSA 2200, Data Analysis and Presentation

BUSA 3105, Negotiation

BUSA 3110, Business Management

BUSA 3255, Corporate Strategy

BUSA 3841, Directed Study

ECON 2160, Strategic Analysis

ECON 3250, Industrial Organization

ECON 4260, Game Theory with Economic Applications

Business-in-Society Electives

ANTH 3135, Development, Social Enterprise, Social Injustice

ANTH 4153, Economic Anthropology

CHIN 4401, Business Chinese I

CHIN 4402, Business Chinese II

ECON 2100, Labor Economics

ECON 2150, Economic History of the United States

ECON 2220, Latin American Development

ECON 3100, Wages, Employment, and Labor Markets

ECON 3160, Economic History of Europe

ENGL 3898, Special Topics in English and American Literature: Business Leader's Bookshelf

FREN 3111, French for Business

GER 4558, Business German

HIST 1600, European Economic History, 1000-1700

HIST 1640, History of American Capitalism

HIST 1660, American Enterprise

HIST 1665, Capital, Labor, and Democracy

HIST 2138, Blood Diamonds, Blood Oil, Commodities, and Conflicts in Africa

HIST 3190, Religion, Culture, and Commerce: the World Economy in Historical Perspective

HIST 3200, Poverty, Economy, and Society in Sub-Saharan Africa

HODL 3890, Special Topics: Introduction to Data Science: Using Data for Understanding

MENT 1120, The Business of Music

MENT 1130, Building Communities through Music and the Arts [1 credit hour]

MENT 1135, Arts Administration: Best Practices and Careers in the Arts Organization [2 credit hours]

MENT 1140, Creating Funding and Nonprofit Vehicles for 21st-Century Community Service [2 credit hours]

PSY-PC 2120, Statistical Analysis (second course in sequence)

PSY-PC 3735, Correlation and Regression

PSY-PC 3749, Applied Nonparametric Statistics

SOC 1020, Contemporary Social Issues: Corporations and Society (only this emphasis)

SOC 3316, Business, Civil Society, and the Environment

SOC 3318, Sociology of Green Jobs

SPAN 3345, Spanish for Business and Economics

Course Descriptions

Special Programs for Undergraduates: Undergraduate Data Science Minor

Data Science is an emerging interdisciplinary field whose goal is to extract knowledge and enable discovery from complex data using a fusion of computation, mathematics, statistics, and machine learning. Datasets can be as varied as maps of the universe, MRI images, human genomes, medical records, stock market transactions, educational data, historical texts, infrastructure systems, or website clickstream data. Over the coming decades, Data Science is expected to have significant impacts on basic and applied research in the sciences, social sciences, arts and humanities, and engineering as well as impact all sectors of the economy from health care to education, government, transportation, finance, manufacturing, construction, and urban planning. Data Science has the potential to improve individual and community health and education; develop smart communities that enable efficient circulation of people, goods, and services; enable informed decision making in public and private sectors; and enhance environmental sustainability and overall quality of life. Given the wide range of applications and potential benefits, the powerful tools and techniques of Data Science must be used ethically and responsibly.

The faculty at Vanderbilt have created a unique trans-institutional undergraduate minor in Data Science that spans all four undergraduate colleges and is affiliated with the Vanderbilt Data Science Institute. Students in Data Science are introduced to the foundations of this interdisciplinary field, with coursework in computer programming, statistics, machine learning, and visualization, interwoven with ethical considerations of collecting, curating, analyzing, visualizing, and interpreting data. The minor in Data Science prepares students for advanced coursework in statistics and data analysis, scientific computing and simulation, machine learning and visualization, and high performance computing and big data. The minor strives to prepare students for unique immersion experiences in basic and applied research, for civic and professional engagement in the public and private sectors, and for international experiences in industry, government, or non-governmental organizations. The minor provides a solid foundation for future professions or graduate study in any field that collects, analyzes, models, or interprets data.

Data Science Minor Requirements

1. *Introduction to Data Science (3 hours)*: DS 1000.
2. *Computer Programming (3 hours)*: One of DS 1100, CS 1100, CS 2201, or CS 2204.
3. *Introduction to Statistics (3 hours)*: One of DS 2100, BME 2400, BSCI 3270, CE 3300, ECON 1500 or 1510, MATH 2810 or 2821, PSY 2100, PSY-PC 2110, or SOC 2100.
4. *Data Science Fundamentals (4 hours)*: DS 3100.
5. *Machine Learning (3 hours)*: One of DS 3262, CS 3262, CS 4262, ECON 3750, or MATH 3670.
6. *Elective (3 hours)*: One course from the list of electives below or DS 3850.

Electives in data science are courses with various combinations of computation, visualization, simulation, statistics, psychometrics, and/or machine learning aimed at understanding and explaining data in the physical, life, or social sciences, engineering, arts, or the humanities, or courses that examine the impact of data on society and its institutions. Students and faculty are encouraged to petition for new courses with data science content to be considered as electives for the minor.

Intermediate / Advanced Programming, Modeling, Simulation

ASTR 3800	Structure Formation in the Universe
BME 4310	Modeling Living Systems for Therapeutic Bioengineering
CHEM 5410	Molecular Modeling Methods
CHEM 5420	Computational Structural Biochemistry
EES 4760	Agent and Individual Based Computational Modeling
ME 4271	Fundamentals of Robotic Manipulators
ME 4284	Modeling and Simulation of Dynamic Systems
ME 4263	Computational Fluid Dynamics and Multiphysics Modeling
ME 4275	Finite Element Analysis
PHYS 3790	Computational Physics
PSY 4218	Computational Modeling
PSY 4219	Scientific Computing for Psychological and Brain Sciences
PSY 4775	Models of Memory
SC 3250	Scientific Computing Toolbox
SC 3260	High Performance Computing

Intermediate / Advanced Probability, Statistics, and Data Analysis

ASTR 8070	Astrostatistics
BIOS 6311	Principles of Modern Biostatistics
BIOS 6312	Modern Regression Analysis
BIOS 6341	Fundamentals of Probability
BIOS 6342	Contemporary Statistical Inference
BIOS 7362	Advanced Statistical Inference and Statistical Learning
BIOS 8366	Advanced Statistical Computing
BME 4420	Quantitative and Functional Imaging
CE 4320	Data Analytics for Engineers
ECON 3035	Econometric Methods
ECON 3330	Economics of Risk
ECON 4050	Topics in Econometrics
EES 3310	Global Climate Change
MATH 3640	Probability
MATH 3641	Mathematical Statistics
MATH 4650	Financial Stochastic Processes
PSY 3891	Bayesian Cognitive Modeling
PSY-PC 2120	Statistical Analysis
PSY-PC 3722	Psychometric Methods

PSY-PC 3724 Psychometrics

PSY-PC 3738 Introduction to Item Response Theory

PSY-PC 3743 Factor Analysis

PSY-PC 3749 Applied Nonparametric Statistics

PSY-PC 3746 Multivariate Statistics

PSY-PC 3737 Structural Equation Modeling

PSY-PC 3732 Latent Growth Curve Modeling

PSY-PC 3727 Modern Robust Statistical Methods
PSY-PC 7878 Statistical Consulting

Machine Learning, Visualization, Data Science

ANTH 3261 Introduction to Geographic Information Systems and Remote Sensing

ANTH 3867 Digital Archaeology

ASTR 8080 Data Mining in Large Astronomical Surveys

BME 4420 Quantitative and Functional Imaging

BMIF 6310 Foundations of Bioinformatics

BMIF 6315 Methodological Foundations of Biomedical Informatics

BMIF 7380 Data Privacy in Biomedicine

CS 3265 Database Management Systems

CS 4260 Artificial Intelligence

CS 4266 Topics in Big Data

CS 6362 Advanced Machine Learning

EECE 4354 Computer Vision

ECON 3750 Econometrics for Big Data

MATH 3130 Fourier Analysis

MATH 3670 Mathematical Data Science

MATH 4620 Linear Optimization

MATH 4630 Nonlinear Optimization

NSC 3270 Computational Neuroscience

PSY-PC 3751 Exploratory and Graphical Data Analysis

The minor in Data Science is jointly administered by the Blair School of Music, the College of Arts and Science, Peabody College of Education and Human Development, and the School of Engineering; it is an official minor within each of the four schools.

Students electing the undergraduate minor in Data Science must follow academic regulations regarding minors in their home school, including but not limited to regulations regarding unique hours. Additional credit hours in Data Science that must be earned because of college-specific regulations regarding unique hours must be

earned by taking additional courses chosen from the list of electives.

Course Descriptions

Special Programs in the School of Engineering

Honors Programs

Honors programs allow selected undergraduate students to develop individually through independent study and research. Individual honors programs are described in the Courses of Study section.

Requirements vary somewhat but, in general, to qualify for consideration a student should have (a) completed the technical course requirements of the first two years, (b) attained a minimum grade average of 3.5 in all work taken for credit, and (c) shown evidence indicating a capacity for independent study and/or research. Formal admission is by election of the department concerned. Once admitted, candidates remain in the program only if they maintain a 3.5 or higher grade average.

Accepted candidates normally begin honors study in the junior year, but exceptions may be made for outstanding seniors.

Successful candidates are awarded Honors in their area of interest. This designation appears on their diplomas.

Study Abroad

Vanderbilt's Global Education Office offers approximately thirty programs that allow students to take engineering or computer science courses in English abroad, in locations ranging from Dublin to Sydney, Madrid to Hong Kong. There are no language prerequisites for these programs. These programs also allow students to take a range of liberal arts core, major core, and elective courses abroad. In no case, after matriculating at Vanderbilt, may a student participate in a Vanderbilt-approved study abroad program through a different university or through an external agency and then seek to transfer that credit into Vanderbilt. Financial aid can be used for study abroad during the academic year, and scholarships are available to support Vanderbilt-approved summer study abroad options. Students are encouraged to discuss with their academic advisers how best to incorporate study abroad into their four-year plans of study. All students who study abroad must register their travel in advance with Vanderbilt’s international security provider.

Registration is completed on your behalf when enrolling in a program offered through the Global Education Office. Otherwise, information is available on the GlobalVU website: vanderbilt.edu/global.

Teacher Education

Students who are interested in preparing for licensure as secondary school teachers should plan their programs in consultation with the associate dean in the School of Engineering and the Director of Secondary Education in the Department of Teaching and Learning at Peabody College. More specific information on professional education course requirements can be found under the Licensure for Teaching chapter in the Peabody College section of this catalog. Inquiries can also be made to the Office of Teacher Licensure at Peabody.

Second Major

It is possible for a student to combine an engineering field with a second area outside the School of Engineering. The student must obtain prior approval of each department and satisfy the requirements of each major, including the requirement regarding minimum grade point average. Students in the School of Engineering may use courses outside the School of Engineering for relevant second majors even if those courses also fulfill a degree requirement.

Certain double majors involving two programs within the School of Engineering have been approved by the faculty. The approved double majors are biomedical engineering/electrical and computer engineering, and biomedical engineering/chemical engineering.

Both majors are indicated on the student's transcript. Only one degree is awarded, from the school in which the student is enrolled.

Minors

A minor consists of at least five courses of at least 3 credit hours each within a recognized area of knowledge. A minor offers students more than a casual introduction to an area, but less than a major. A minor is not a degree requirement, but students may elect to complete one or more. Courses may not be taken on a Pass/Fail basis. A minor for which all designated courses are completed with a grade point average of at least 2.0 will be entered on the transcript at the time of graduation.

When a minor is offered in a discipline that offers a major, only those courses that count toward the major may be counted toward the minor. Students should refer to the appropriate sections of this catalog for specific requirements. Minors are offered in engineering management, materials science and engineering, computer science, digital fabrication, electrical and computer engineering, energy and environmental systems, environmental engineering, nanoscience and nanotechnology, scientific computing, and most disciplines of the College of Arts and Science, Blair School of Music, and Peabody College.

Students should declare their intention to pursue minors by completing forms available in the Office of Academic Services of the School of Engineering. Departments and programs usually assign advisers to students who declare minors in their areas. Students are responsible for knowing and satisfying all requirements for the minors they intend to complete.

Dual Degree Program with Fisk University

A coordinated dual degree program between the Vanderbilt University School of Engineering and Fisk University is especially designed to permit students to obtain an A.B. degree in biology, chemistry, computer science, physics, or mathematics from Fisk and a B.E. degree in engineering from Vanderbilt, generally within five years.

For the first three years, the student is enrolled at Fisk in a science or mathematics curriculum and, by cross-registration in the second and third years, takes introductory engineering courses at Vanderbilt. During the fourth and fifth years, the student is enrolled at Vanderbilt, following principally an engineering curriculum at Vanderbilt and completing necessary courses at Fisk. At the end of five years, the student should be able to satisfy the requirements for both bachelor's degrees.

Financial aid is available for qualified, deserving students. Additional information is available from the director of transfer admissions in the Office of Undergraduate Admissions.

Integrated Bachelor and Master of Engineering

On the basis of recommendations containing favorable appraisals of professional promise, undergraduate students in the School of Engineering who have completed at least 75 hours by the end of the second year with at least a 3.000 grade point average may be accepted into an integrated Bachelor of Engineering–Master of Engineering program. This program is currently available in chemical, civil, environmental, and mechanical engineering. The last two years of a student's program are planned as a unit.

With the approval of the student's adviser, the director of graduate studies in the student's major department, and the senior associate dean for undergraduate education, students apply through the senior associate dean for graduate education for admission to this integrated dual degree program. Upon admission to this program, a second "career" will be set up for the student which will allow the student to start taking graduate courses (course numbers > 5000) during the junior and senior years. These courses will be credited toward the master of engineering. Note that no double counting of courses is allowed (i.e., the student must meet the degree requirements for each degree independent of the other degree). No more than 18 total credit hours between the two careers can be taken in a single semester. The student typically receives the bachelor's degree at the end of the fourth year and completes the master of engineering during the fifth year. Further information can be

obtained from the director of graduate studies of the student's major department.

Accelerated Graduate Program in Engineering

Students who enter Vanderbilt with a significant number of credits, earned either through Advanced Placement or International Baccalaureate tests or in college courses taken during high school, may be eligible for the Accelerated Graduate Program in Engineering. Through this program, a student is able to earn both a bachelor's degree and a master of science in about the same time required for the bachelor's degree or slightly longer. To be eligible for the program, a student must complete 86 hours (senior standing) by the end of the sophomore year with at least a 3.500 grade point average. With the approval of the student's adviser, the director of graduate studies in the student's major department, and the senior associate dean for undergraduate education, students apply through the senior associate dean for graduate education for admission to this accelerated dual degree program. Upon admission to this program, a second "career" will be set up for the student which will allow the student to start taking graduate courses (course numbers > 5000) during the junior and senior years. These courses will be credited toward the master of science.

Note that no double counting of courses is allowed (i.e., the student must meet the degree requirements for each degree independent of the other degree). No more than 18 total credit hours between the two careers can be taken in a single semester. The student receives the bachelor's degree at the end of the fourth year and typically spends the summer finishing a master's thesis to complete the master of science. Further information can be obtained from the director of graduate studies of the student's major department.

Teacher Education

Students interested in preparing for licensure as early childhood, elementary, special education, or secondary school teachers should meet with Associate Dean Roger Moore, College of Arts and Science, as soon as possible to initiate discussion with appropriate personnel in teacher education.

Specific information on program requirements will be found under Licensure for Teaching in the Peabody College section of this catalog.

Early Childhood and Elementary Education

Students interested in preparing to teach early childhood or elementary school pupils major in a single discipline or an interdisciplinary program in the College of Arts and Science as well as in education at Peabody College.

Secondary Education

The College of Arts and Science and Peabody College offer teacher education programs leading to secondary school teacher licensure in the following fields:

English

Mathematics

Science (Biological Sciences, Chemistry, Earth and Environmental Sciences, Physics)

Social Studies (History and Political Science). Economics, Psychology, and Sociology may become additional endorsement areas for students who also have selected history or political science as an endorsement area.

Students major in an academic discipline in the College of Arts and Science and complete a second major in education at Peabody College.

Special Education

Students interested in preparing to teach children with special needs major in special education at Peabody College. Areas of teacher licensure available are mild and moderate disabilities, multiple and severe disabilities,

visual impairment, hearing impairment, and early childhood special education.

Teaching and Learning (Peabody)

Majors in Early Childhood and Elementary Education, and Secondary Education and Minor in Teaching Linguistically Diverse Students

Elementary Education

Secondary Education

CHAIR Noel Enyedy

ASSOCIATE CHAIR Melanie Hundley

DIRECTOR OF GRADUATE STUDIES Heidi Carlone

DIRECTOR OF UNDERGRADUATE STUDIES Catherine McTamaney

Elementary Education

The specialization in elementary education is field-oriented and designed to prepare students to teach children in grades K-5. Beginning in the freshman year, students observe and participate in local schools and experimental classrooms on campus. Most Liberal Education Core courses are taken in the College of Arts and Science.

Students must combine a specialization in elementary education with a second major in the liberal arts, an interdisciplinary major, or another major offered by Peabody College or the College of Arts and Science. Course work beyond the standard 120-hour program may be required for some double majors.

Vanderbilt students seeking teacher licensure must apply through the Office of Teacher Licensure at Vanderbilt and must meet licensure requirements in effect at the time of their graduation, which may be different from licensure requirements in effect at the time they entered the program. Licensure requirements are currently undergoing change. Each year, teacher licensure candidates should consult the current Vanderbilt *Undergraduate Catalog,* the *Undergraduate Guide to Teacher Licensure* published by the Vanderbilt Office of Teacher Licensure, and the *Undergraduate Handbook* published by the Office of Undergraduate Academic Affairs.

B.S. Degree Requirements

Elementary Education (K–5 Licensure)

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the Peabody Undergraduate Handbook (peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

Writing Requirement

See the “Writing Requirement” section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Professional Education Core. 28 hours.

EDUC 1220, 3212, 3214, 3215, 3270; MTED 3250; SCED 3240; SSED 3240; HMED 2250; SPED 1210; PSY-PC 2600

Field Experiences. 15 hours.

EDUC 3216, 3240, 4952, 4962; MTED 3251

An approved second major is required.

Secondary Education

The major in secondary education is designed to prepare the student to teach one or more subjects at the secondary level (grades 6–12). Students must complete Liberal Education Core requirements, Professional Education requirements, and a primary area of emphasis in at least one endorsement field, which involves 31 to 40 hours of course work in the discipline and results in a major in that area as defined by the College of Arts and Science. Specific requirements for a second area of endorsement may be obtained from the Office of Teacher Licensure in the Peabody Administration Building. Students must take the appropriate methods course for each area of endorsement.

Undergraduate students applying for admission into the teacher education program (Screening I) and into student teaching (Screening II) for secondary licensure must be approved by the faculty in the Department of Teaching and Learning as well as reviewed by the faculties of each Arts & Science department in which the student is seeking licensure. Students are instructed to consult an adviser or the Director of Undergraduate Studies in each Arts & Science department involved in order to be informed of departmental policy on reviewing students for teacher licensure.

Added Endorsements

Added Endorsements within the Social Sciences:
Majors in economics, political science, psychology, and sociology who are seeking licensure in Secondary Education are required to have an added endorsement in history.

Additional licensure in content area(s) by test only:

At present, Tennessee law permits a student with 6-12 licensure in one content area to obtain licensure in additional content areas by successfully passing the designated content area Praxis exam(s). To take advantage of this, candidates can petition the state to add an endorsement area after the initial license is issued.

Note: Vanderbilt students seeking Tennessee teacher licensure must apply for licensure through the Vanderbilt Office of Teacher Licensure and **must meet licensure requirements in effect at the time of their graduation** - which may be different from those in effect at the time they entered Vanderbilt. Requirements are currently undergoing change. Teacher licensure candidates are urged to consult the current Vanderbilt Undergraduate Catalog and/or materials published by the Vanderbilt Office of Teacher Licensure each year to keep abreast of possible changes in Tennessee requirements. **Students should be aware that the requirements may change after publications of the Handbook and should be alert to notices or reminders sent from advisers or from the Office of Teacher Licensure.**

B.S. Degree Requirements

Secondary Education (6–12 Licensure)

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located online in the *Peabody Undergraduate Handbook* (peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

All Peabody College freshmen who have not earned a combined score of 660 on the evidence-based reading and writing component of the redesigned SAT with minimum scores of 27 on the reading component and 28 on the writing and language component, or ACT English test score of 30 or above, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 1100 Before graduation, all Peabody students must successfully complete two writing courses. Writing-intensive courses either have a “W” after the course number (A&S courses) or end with the digit "7" (Peabody courses). ENGL 1220W, 1230W, and 1300W earned by testing credit such as AP or IB credit will not satisfy the Writing requirement.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Secondary Education Undergraduate Courses

FOUNDATIONAL AND CORE COURSES

EDUC 1220. School and Society [3]

SPED 1210. Introduction to Exceptionality [3]

PSY-PC 2550. Adolescent Development [3]

EDUC 3620. Social and Philosophical Foundations of Education [3]

EDUC 3310. Classroom Ecology [3]

FIELD BASED COURSES

EDUC 3871. Practicum in Secondary Education I [1]

EDUC 3280: Planning & Assessment Strategies [3]

ENED, MTED, SCED, or SSED 3371. Professional Year Practicum [3]

EDUC 4953. Student Teaching in the Secondary School [9]

CONTENT AREA COURSES

English

ENED 3340. Reading and Learning with Print and New Media [3]

ENED 3357. Literature, Pop Culture, and New Media [3]

ENED 3370. Teaching Literature and New Media in the Secondary Schools [3]

ENED 3380. Teaching Writing in Secondary Schools [3]

ENED 4963. Student Teaching Seminar: Secondary [3]

Mathematics

MTED 3320. Introduction to Literacies in Mathematics [3]

MTED 3360. Computers, Teaching, and Mathematical Visualization [3]

MTED 3370. Teaching Mathematics in Secondary School [3]

MTED 4963. Student Teaching Seminar: Secondary [3]

Science

SCED 3320. Introduction to Literacies in Science [3]

SCED 3400. Modeling in the Secondary Classroom [3]

SCED 3370. Teaching Science in Secondary Schools [3]

SCED 4963. Student Teaching Seminar: Secondary [3]

Social Studies

SSED 3320. Introduction to Literacies in Social Studies [3]

SSED 3260. Human Geography [3]

SSED 3370. Teaching Social Studies in Secondary Schools [3]

SSED 4963. Student Teaching Seminar: Secondary [3]

Secondary Education (6-12) Schedule for Coursework in Major

		English Education	Mathematics Education	Science Education	Social Studies Education
First Year	Fall	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)	EDUC 1220 (3) Liberal Core and 2nd Major (12-15 hrs)
	Spring	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)	SPED 1210 (3) Liberal Core and 2nd Major (12-15 hrs)

Second Year	Fall	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (12-15 hrs)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) MTED 3360 (3) OR Fall Third Year Liberal Core and 2nd Major (8-10 hrs)	**PSY-PC 2550 (3) &** **EDUC 3871 (1) OR** **EDUC 3620 (3)** Liberal Core and 2nd Major (12-15 hrs)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (12-15 hrs)
	Spring	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (12-15 hrs)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) MTED 3320 (3) or Spring Third Year Liberal Core and 2nd Major (12-15 hrs)	**PSY-PC 2550 (3) &** **EDUC 3871 (1) OR** **EDUC 3620 (3)** **SCED 3400 (3)** Liberal Core and 2nd Major (12-15)	PSY-PC 2550 (3) & EDUC 3871 (1) OR EDUC 3620 (3) Liberal Core and 2nd Major (11-15)
Third Year	Fall	**EDUC 3720 (3)** **ENED 3340 (3)** **ENED 3310 (3)** **EDUC 3280 (3) fall or spring** Liberal Core, 2nd Major & Electives (6-9 hrs)	**EDUC 3720 (3)** **MTED 3360 (3) or spring** MTED 3320 (3) EDUC 3280 (3) fall or sping Liberal Core, 2nd Major & Electives (9-12 hrs)	**EDUC 3720 (3) (or spring)** **SCED 3320 (3) or spring** EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (6-9 hrs)	**EDUC 3720 (3)** **SSED 3260 (3)** SSED 3320 (3) EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (9-12 hrs)
	Spring STUDY ABROAD TERM	ENED 3350 (3) EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (12-15 hrs)	EDUC 3280 (3) fall or spring MTED 3320 (3) or Spring Third Year Liberal Core, 2nd Major & Electives (15-18 hrs)	**EDUC 3720 (3)** (or fall) EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (12-15 hrs)	EDUC 3280 (3) fall or spring Liberal Core, 2nd Major & Electives (15-18 hrs)
Fourth Year	Fall	EDUC 3310 (3) ENED 3371 (3) ENED 3370 (3) ENED 3380 (3) 2nd Major and Electives (5-8 hrs)	EDUC 3310 (3) MTED 3371 (3) MTED 3370 (3) 2nd Major and Electives (9-11 hrs)	**EDUC 3310 (3)** **SCED 3370 (3)** **SCED 3371 (3)** 2nd Major and Electives (9-11 hrs)	EDUC 3310 (3) SSED 3371 (3) SSED 3370 (3) 2nd Major and Electives (6-8 hrs)
	Spring	EDUC 4953 (9) ENED 4963 (3)	EDUC 4953 (9) MTED 4963 (3)	**EDUC 4953 (3)** **SCED 4963 (3)**	EDUC 4953 (3) SSED 4963 (3)

Students take a minimum of 120 hours, distributed as follows:

Liberal Education Core Requirements. Minimum 60 hours.

The Liberal Education Core is composed of required course work from the areas of Communications, Humanities, Mathematics, Science, Cultural Studies, Social Science, and Electives. Listings of all courses that may fulfill these areas are located on the online *Peabody Undergraduate Handbook* (peabody.vanderbilt.edu/admin-offices/oas/downloads.php).

Writing Requirement

See the "Writing Requirement" section of the general Peabody academic policy section of the Undergraduate Catalog.

NOTE: First-year Seminars (courses numbered 1111) offered through the College of Arts and Science and the Blair School of Music may count as writing intensive courses. Peabody freshmen may only register for First-year Seminars when open registration begins.

Major Foundations. 9 hours.

EDUC 1220 Society, School & Teacher, SPED 1210 Introduction to Exceptionality, PC-PSY 1250 or 2550 Developmental Psychology

Learning and Equity in Diverse Contexts Specialization

Learning and equity in diverse contexts is focused on the interaction of learning, design, and context in out-of-school settings, attracting students who are interested in learning in informal settings. This specialization is appropriate for students who envision themselves working and learning with students out of traditional classroom settings.

Note: Students may enroll in this specialization after matriculation to the university, but may not be admitted directly into this program. Educational Studies can serve as a student's first or second major, but must be a third major or minor if combined with a licensure program. Students must use the Change of Major/Minor Declaration/Change form to declare educational studies as their first, second, or third major.

LEARNING, DEVELOPMENT AND CONTEXT CORE *(9 hours chosen from the following)*

EDUC 3140. Learning and Development in Early Childhood Education

EDUC 2160. Cultural Diversity in American Education

EDUC 3120. Children in Families and Schools

EDUC 2920. Social & Philosophical Aspects of Education

FIELD WORK IN EDUCATIONAL STUDIES *(12 hours)*

EDUC 3861. Initial Fieldwork in Educational Studies [3]

EDUC 3862. Advanced Fieldwork in Educational Studies [3]

EDUC 4950. Capstone Fieldwork in Educational Studies [6]

PLUS ELECTIVE COURSES *(3 hours)*

EDUC 3180/3270. Managing Instructional Settings

ENED 2430. Fostering Language in Diverse Classrooms

ENED 3350. Literature, Popular Culture & New Media

HMED 2150/2250. Children's Development in the Arts

MTED 2200. Children's Mathematical Thinking and Learning

MTED 3320. Intro to Math Literacies

MTED 3360. Math Visualizations

PSY-PC 2600. Educational Psychology

PHIL 3603. Philosophy of Education

SCED 3320. Intro to Science Literacies

SSED 2200. Scientific and Historical Reasoning in Children

SSED 3260. Human Geography

SPED 3332. High Poverty Youth

Additional courses as approved by adviser and UAC

Elementary Education and Secondary Education Specializations

These are alternative education studies specializations that are available only to students with these first majors who discover they are unable to complete their major requirements pre-student teaching after it is too late to complete a different first major to graduate. These educational studies specializations are initiated by the director of undergraduate studies, in consultation with the student and the elementary or secondary education major advisers. Students must use the Change of Major/Minor Declaration/Change form to declare education studies as their first or second major.

Elementary Specializations *(23 hours)*

EDUC 3212. Introduction to Reading Processes and Assessment [3]

EDUC 3214. Reading in Elementary Schools [3]

EDUC 3215. Language Arts in Elementary Schools [3]

MTED 3250. Teaching Mathematics in Elementary Schools [2]

SSED 3240. Teaching Social Studies in Elementary Schools [2]

SCED 3250. Teaching Science in Elementary Schools [2]

HMED 2250. Introduction to Arts Education [2]

EDUC 3270. Managing Instructional Settings [2]

EDUC 3216. ELE Practicum: Language and Literacy [1]

EDUC 3240. ELE Practicum: Science and Social Studies [1]

MTED 3251. ELE Practicum: Mathematics and Science [1]

PSY-PC 2600. Educational Psychology [3]

Secondary Specialization *(21 hours)*

EDUC 3310. Teaching in Secondary Schools [3]

EDUC 3720. Foundations for Teaching Linguistically Diverse Students [3]

EDUC 3620. Foundations of Education [3]

SCED/MTED/SSED 3320 [3] or ENED 3380. Teaching Methods in Secondary Schools [3]

ENED/SCED/MED/SSED 3370. Teaching Methods in Secondary Schools [3]

EDUC 3871. Practicum in Secondary Education I [1]

EDUC 3280. Planning & Assessment Strategies [3]

ENED/SCED/MTED/SSED 3371. Professional Year Practicum [3]

SCED 3400. Modeling in the Secondary Classroom [3]

MTED 3360. Computers, Teaching, and Mathematical Visualization [3]

SSED 3260. Human Geography [3]

ENED 3357. Literature, Pop Culture, and New Media [3]

ENED 3310. Language Study in the Secondary Classroom [3]

Plus 3 hours of electives

Minor in Teaching Linguistically Diverse Students

Required Core: (15 hours)

- EDUC 3730, ELL Educ Foundations – 3 hours
- EDUC 3740, English Language Learner Methods and Materials – 3 hours
- EDUC 3742, Practicum: Multilingual Learners – 3 hours
- EDUC 3750, Linguistics and Language Acquisition for English Language Learner Teachers – 3 hours
- EDUC 3760, Assessment of English Language Learners – 3 hours

The Degree Programs (Blair)

Bachelor of Music

Bachelor of Musical Arts

Liberal Arts Core

Bachelor of Music

The Bachelor of Music degree program includes five different majors: performance, composition, jazz studies, integrated studies, and integrated studies/teacher education. The performance major is available in any orchestral instrument, piano, saxophone, euphonium, and voice. The composition major emphasizes both the creation and analysis of music. The major in jazz studies combines performance, composition, improvisation, musicianship, analysis, music technology, entrepreneurship, and an emphasis on global music. Optional concentrations are available in collaborative arts, composition, conducting, ethnomusicology, jazz, multiple woodwinds, music and the mind, musicology, pedagogy, or music theory. The integrated studies major provides a solid foundation in the art of music and includes a required concentration in collaborative arts, composition, conducting, ethnomusicology, jazz, multiple woodwinds, musicology, pedagogy, music theory, or an individually designed area.

The integrated studies/teacher education program, a five-year curriculum jointly developed with Peabody College, is for students interested in earning the master of education degree and teacher licensure in addition to the bachelor of music degree. Students in this curriculum can earn the B.Mus. degree in four years and the M.Ed. and teacher licensure for instrumental/general or vocal/general music in the fifth year (June–May).

All bachelor of music degree candidates complete a program designed to ensure an intense, yet broadly-based, understanding of the discipline of music, focused on the skills and knowledge students will need to succeed as informed musicians of the twenty-first century. Each student must complete 126 credit hours, including 80 hours in music. The music core (44 credit hours minimum) includes music theory, aural skills, keyboard harmony, ethnomusicology/musicology, conducting, technology for musicians, pedagogy, and ensemble. Each major has additional specific requirements, including performance instruction and other music courses (to fulfill 80 hours).

Liberal arts core requirements (minimum of 30 hours) include English, the humanities, courses chosen from history or social science, mathematics or natural science, and academic electives. Students may take free electives to total 126 hours. Sample curriculum plans are in the *Blair Student Handbook* at blair.vanderbilt.edu/academics.

Bachelor of Music Degree Requirements Requirements by Major Area

Brass Performance

Composition

Harp Performance

Integrated Studies

Integrated Studies/Teacher Education Instrumental/General

Integrated Studies/Teacher Education Vocal/General

Jazz Studies

Percussion Performance

Piano Performance

String Performance

Voice Performance

Woodwind Performance

BRASS PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2210 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

TRPT, HORN, TROM, EUPH, or TUBA 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. TRPT, HORN, TROM, or TUBA 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MPED 3142, MREP 2110

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

COMPOSITION

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (every semester in residence)

Eight semesters selected with the adviser’s approval. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 6 hours, 6 semesters

3 semesters in any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice (1100 level); 2 semesters chosen from any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice or MUED 1010-1040; 1 semester chosen from any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, voice (1100 level), or JAZZ 1100.

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

COMPOSITION. COMP 2301-2304, 4301-4304

Students rotate instructors as assigned for COMP 2301-2304 to gain experience with 4 different members of the department. Students may select one or more instructors of choice for COMP 4301-4304.

OTHER MUSIC. COMP 1000 (every semester in residence); MUTH 3110, MUTH 3210 or 3220, MUTH 3230, COMP 3978, 4970

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. Must include one year of a foreign language, normally French, German, or Italian. Another language appropriate to the student’s musical pursuits may be chosen with approval of composition/ theory department. Two (2) courses chosen from: 2000-level or higher art history, 2000- level or higher English, 2000-level or higher philosophy; a total of 33 hours, rather than 30, in liberal arts (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

HARP PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 1130 or 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2210 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

HARP 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. HARP 1000 (every semester in residence), MUSO 3970, 4970

OTHER MUSIC. MREP 2130, MPED 3128

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8-10 hours (every semester in residence)

Auditions for major ensembles are required each semester until requirements are fulfilled. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

Strings, woodwinds, brass, harp, percussion—(10 hours minimum) Eight semesters MUSE 1010 (including four semesters of MUSE ~~1130, 1140, 2220,~~ 2210, 2220, 2230, or 2240, ½ credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career. Double bass majors may choose MUSE 2270 instead of 2210, 2220, 2230, or 2240. MUSE 2280 may substitute for one required semester of MUSE 2210, 2220, 2230, or 2240 after completing two semesters of MUSE 2210, 2220, 2230, or 2240.

Piano—(8 hours) MUSE 2300 (one semester), 2310 (one semester), 2320 (one semester), conducted ensemble 1010, 1020, 1030, 2120, or other approved conducted choir (one semester), and choice of 1010, 1020, 1030, 1310, 2120, 2210, 2230, 2270, 2280, 2310, 2320, or 2330 (four semesters). Participation in 1010 or 1030 is contingent upon approval of ensemble conductor and piano instructor.

Voice—(8 hours) Eight semesters MUSE 1020 or 2120 as assigned (or 2330 if demonstrated schedule conflict exists); juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120.

Composition—(8 hours) Eight semesters, selected with adviser's approval

INDIVIDUAL PERFORMANCE or COMPOSITION (for composition students) INSTRUCTION. 2100 and 4100 level, 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

REQUIRED CONCENTRATION IN MUSIC. 18-20 hours.

PERFORMANCE. Performance class (or composition studio class for composers) every semester in residence

(BASS 1000, BSSN 1000, CLAR 1000, CLLO 1000, COMP 1000, FLUT 1000, HARP 1000, HORN 1000, OBOE 1000, PERC 1000, PIAN 1000, SAX 1000, TROM 1000, TRPT 1000, TUBA 1000, VLA 1000, VLN 1000, VOIC 1000)

OTHER MUSIC. 4 hours. MUSO 1201, 1400, 1410, 1420 (required for voice only); 4 hours of 1100-level performance instruction or MUED 1010-1040 and 3 hours MUTH 3110 (required for composition only); MUSO 1130 (required for percussion only)

PEDAGOGY. 2 hours. MPED in the area of individual performance or COMP 1000 for composition.

MUSIC ELECTIVES. To complete a minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

INTEGRATED STUDIES/TEACHER EDUCATION, INSTRUMENTAL/GENERAL

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 9 hours minimum (ensemble enrollment required every semester and every module in residence).

Six semesters conducted ensemble (chosen from MUSE 1010, 1020, or 2120) and two semesters small ensemble (recommended: MUSE 1030, 1200, 1230, 1232, 1320, 1330, 1340, 2210, 2270, 2280, 2300, 2320 and 2330) are required. Instrumental ensemble (MUSE 1010) and co-requisite chamber music (MUSE 2210) are required for

instrumentalists both semesters of the first year. Instrumentalists must enroll in at least one semester of MUSE 1020 or 2120 and have experience in orchestra, wind ensemble, jazz ensemble (as appropriate), choir and chamber music. Pianists must be accepted in MUSE 1010, 1020, or 2120 by the beginning of the second semester. Assignment to ensembles is at the discretion of the directors. During study abroad, a student may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE or COMPOSITION INSTRUCTION. 2100 and 4100 level, 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

COMPOSITION/THEORY. MUTH 3110

PERFORMANCE. Performance class (or composition studio class for composers) on primary instrument every semester. Secondary instrument(s) two semesters; Intro to Guitar GTR 1010. Senior Recital MUSO 4970. Composition majors only: Performance instruction in an instrument or voice, 8 semesters [8 hours]; composition majors must meet the performance department standards for instruction at the 2100 level and participation in required ensembles.

OTHER MUSIC. Instrumental Conducting MCON 3010.

Note: Conducting study must include two different professors.

MUSO 1130 (Percussion majors only)

PEDAGOGY. 2 hours. MPED in the area of individual performance or COMP 1000 for composition

TEACHING. Class Instruments MUED 1010, 1020, 1030, 1040; Methods and Materials MUED 2010, 3010; Experiential Instruction in Music MUED 3880, 3881, 3882; One MUED seminar of choice MUED 2120-2150; Practica in Music Teaching MUED 3870, 3871, 3872.

LIBERAL ARTS. 30 hours

English/Writing: 6 hours, including MUSL 2200W and choice of AP/IB English credit, any ENGL, or any writing course (any W in the English language, any 1111, or ENGL 1100).

Humanities: 9 hours, including MUSL 2100 and 6 hours in humanities.

History and Social Science: 3 hours

Mathematics: 3 hours math, chosen from statistics (PSY-PC 2110) or calculus (MATH 1010, 1011, 1100, 1200, 1201, 1300, 1301).

Academic Electives: 9 hours, including EDUC 1220 and SPED 1210, which must be completed before fall of the junior year.

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

INTEGRATED STUDIES/TEACHER EDUCATION, VOCAL/GENERAL

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (ensemble enrollment required every semester and every module in residence).

6 semesters large ensemble (chosen from MUSE 1010, 1020, or 2120) and 2 semesters small ensemble (recommended: MUSE 1030, 1200, 1232, 1320, 1330, 1340, 2210, 2270, 2280, 2300, 2320 and 2330) are required. Juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE or COMPOSITION INSTRUCTION. 2100 and 4100 level, 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. Performance class on primary instrument every semester. PIAN 1100 one semester (or VOIC 1100 for non-voice majors). African Performing Ensemble MUSE 1230 one semester. Intro to Guitar GTR 1010. Senior Recital MUSO 4970. Composition majors only: Performance instruction in an instrument or voice, 8 semesters [8 hours]; composition majors must meet the performance department standards for instruction at the 2100 level and participation in required ensembles.

OTHER MUSIC. MCON 3020 Choral Conducting. MUSO 1400 Diction for Singers: English and Italian; MUSO 1410 Diction for Singers: German; MUSO 1420 Diction for Singers: French; it is recommended that MUSO 1400, MUSO 1410 and MUSO 1420 be taken in sequence in the first three semesters). MUSO 1130 (percussion majors only). MUSO 1201 (voice majors only).

PEDAGOGY. 2 hours. MPED in the area of individual performance or COMP 1000 for composition.

TEACHING. Methods and Materials MUED 2010, 3020; Choral Literature and Arranging MUED 2110; Experiential Instruction in Music MUED 3880, 3881, 3882; Piano Skills MUED 1080 (or VOIC 1100 for non-voice majors); One MUED seminar of choice MUED 2120-2150; Practica in Music Teaching MUED 3870, 3871, 3872.

LIBERAL ARTS. 30 hours

English/Writing: 6 hours, including MUSL 2200W and choice of AP/IB English credit, any ENGL, or any writing course (any W in the English language, any 1111, or ENGL 1100).

Humanities: 9 hours, including MUSL 2100 and 6 hours in humanities.

History and Social Science: 3 hours

Mathematics: 3 hours math, chosen from statistics (PSY-PC 2110) or calculus (MATH 1010, 1011, 1100, 1200, 1201, 1300, 1301)

Academic Electives: 9 hours, specifically EDUC 1220 and SPED 1210, which must be completed before fall of the junior year.

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

JAZZ STUDIES

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum; every semester in residence

MUSE 1310, 1320, or 1330, six semesters, 1 hour each; MUSE 1200, 1210, 1220, 1230, 1310, 1330, 1320, 1340, four semesters, 1 hour each. Assignment to ensembles is at the discretion of the directors. During study abroad,

students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 16 hours, 8 semesters (every semester in residence)

JAZZ 2100; 4100 (Voice students must also enroll in VOIC 1100 (1 hour) in each of the first two semesters in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

JAZZ STUDIES. 19 hours

MUSL 1630, 3238; MUTH 3120; JAZZ 1150, 1210, 1220, 1230; Six hours chosen from MUSL in Jazz and Global Music, MENT, or MUSO 1342-1348

OTHER MUSIC. JAZZ 1000 (every semester in residence), MUSO 4970, MUED 2140 (pedagogy)

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

PERCUSSION PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 1140, 2220, or 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2210 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

PERC 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. PERC 1000 (every semester in residence), MUSO 3970, 4970

OTHER MUSIC. MUSO 1130, MREP 2120 or 2121, MPED 3144

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

PIANO PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 2133 and 2134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (every semester in residence)

MUSE 2300 (one semester), 2310 (one semester), 2320 (one semester), conducted ensemble 1010, 1020, 1030, 2120 (one semester), and choice of 1010, 1020, 1030, 1310, 2120, 2210, 2230, 2310, 2320, 2330, 2270, or 2280 (four semesters). Participation in 1010 or 1030 is contingent upon approval of ensemble conductor and piano instructor. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

PIAN 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. PIAN 1000 (every semester in residence), MUSO 3970, 4970

OTHER MUSIC. MREP 3310, 3311, MPED 3110

LIBERAL ARTS CORE. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

STRING PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 2210, 2230, or 2240 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). Double bass majors may choose MUSE 2270. MUSE 2280 may substitute for one required semester of MUSE 2210, 2230, or 2240 after completing two semesters of MUSE 2210, 2230, or 2240. Double bass majors may substitute MUSE 2280 for one required semester of MUSE 2210, 2230, or 2270 after completing two semesters of MUSE 2210, 2230, or 2270. All students except double bass majors must have experience in string quartet (MUSE 2240). Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

VLN, VLA, CLLO, or BASS 2200, 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. VLN, VLA, CLLO, or BASS 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MREP 2130. MPED 3120, 3121, 3125, 3127, or 3129

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

VOICE PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8 hours minimum (every semester in residence)

Eight semesters MUSE 1020 or 2120 as assigned (or 2330 if demonstrated schedule conflict exists); juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 28 hours, 8 semesters (every semester in residence)

VOIC 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. PIAN 1100 (two semesters); VOIC 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MUSO 1201, 1400, 1410, 1420, MREP 3330, MPED 3130

LIBERAL ARTS. 30 hours, including 6 hours (two semesters) chosen from French, German (GER 1105 is strongly recommended), and Italian (see full requirements under Humanities below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

WOODWIND PERFORMANCE

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 10 hours minimum

MUSE 1010 (every semester in residence); MUSE 2210 (four semesters, 1/2 credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career). MUSE 2280 may substitute for one semester of MUSE 2210 after completing two semesters of MUSE 2210. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)

FLUT, OBOE, CLAR, BSSN, SAX 2200; 4200

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. FLUT, OBOE, CLAR, BSSN, SAX 1000 (every semester in residence); MUSO 3970, 4970

OTHER MUSIC. MREP 2140 (flute, oboe, clarinet, and bassoon) *or* MREP 2141 (saxophone); MPED 3140 (section appropriate for major instrument)

LIBERAL ARTS CORE. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

Bachelor of Musical Arts

The bachelor of musical arts degree gives excellent performers and composers the flexibility to combine in-depth music study with a second focus in a field outside of music. The degree, which is available in any orchestral instrument, piano, saxophone, euphonium, voice, jazz studies, and composition, includes 63 credit hours in music; a specific field outside of music or an individually-designed area of interdisciplinary studies (minimum of

18 hours) is also required. In addition to performance or composition instruction (16 hours), the music core (44 credit hours minimum) includes music theory, aural skills, keyboard harmony, ethnomusicology/musicology, conducting, technology for musicians, pedagogy, and ensemble. Liberal arts core requirements (minimum of 30 hours) include English, the humanities, courses chosen from history or social science, mathematics or natural science, and academic electives. Students may take free electives to total 126 hours.

Through a dual B.Mus.Arts/MBA program, interested students in the musical arts degree have an opportunity to compress both the bachelor of musical arts at the Blair School of Music and the master of business administration at the Owen Graduate School of Management into ten semesters in residence. Application for this program is made early in the fall semester of the junior year. First-year students will be admitted to the B.Mus.Arts through the admissions process of the Blair School. Students must declare the concentration within music or the field outside of music of the B.Mus.Arts no later than the tenth day of the first semester of the junior year. Sample curriculum plans are in the *Blair Student Handbook* at blair.vanderbilt.edu/academics.

Bachelor of Musical Arts Degree Requirements

MUSIC THEORY, AURAL SKILLS, AND KEYBOARD HARMONY. 19 hours

MUTH 2100, 2200, 2300, 2400

MUTH 2110, 2220, 2330, 2440

MUKH 1131, 1132, 1133, and 1134

MUSICOLOGY/ETHNOMUSICOLOGY. 12 hours

MUSL 2100, 2200W, one course chosen from 3220-3240, 3100

CONDUCTING. 2 hours

MCON 3000

TECHNOLOGY. 1 hour

MUSO 1340

ENSEMBLE. 8-10 hours (every semester in residence)

Auditions for major ensembles are required each semester until requirements are fulfilled. Assignment to ensembles is at the discretion of the directors. During study abroad, students may waive participation in an ensemble of choice.

Strings, woodwinds, brass, harp, percussion—(10 hours minimum) Five semesters MUSE 1010 (including four semesters of MUSE 1130, 1140, 2220, 2210, or 2240, ½ credit minimum each semester, taken both semesters of the first year, with two additional courses taken during career); and three semesters ensemble of choice. Double bass majors may choose MUSE 2270 instead of 2210, 2220, or 2240. MUSE 2280 may substitute for one required semester of MUSE 2210, 2220, or 2240 after completing two semesters of MUSE 2210, 2220, or 2240. Double bass majors may substitute MUSE 2280 for one required semester of MUSE 2210, 2230, or 2270 after completing two semesters of MUSE 2210, 2230, or 2270.

Piano—(8 hours) One semester chosen from MUSE 1010, 1020, 1030, 2120, or other approved conducted choir; one semester of 2300; three semesters of 2210, 2230, 2310, 2320, or 2330; three semesters ensemble of choice with adviser's approval.

Voice—(8 hours) Eight semesters MUSE 1020 or 2120 as assigned (or 2330 if demonstrated schedule conflict exists); juniors or seniors cast in principal roles in MUSE 1030 (as defined by the voice faculty) may substitute MUSE 1030 for one semester only of MUSE 1020 or 2120.

Composition—(8 hours) Eight semesters, selected with adviser's approval.

Jazz Studies - (8 hours) Five semesters chosen from MUSE 1310, MUSE 1330, or MUSE 1320; three semesters ensemble of choice with adviser's approval.

INDIVIDUAL PERFORMANCE or COMPOSITION (for composition students) INSTRUCTION. 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit

MUSO 1000 (every semester in residence except penultimate or final semester)

PERFORMANCE. Performance class (or composition studio class for composers) every semester in residence

(BASS 1000, BSSN 1000, CLAR 1000, CLLO 1000, COMP 1000, FLUT 1000, HARP 1000, HORN 1000, JAZZ 1000, OBOE 1000, PERC 1000, PIAN 1000, SAX 1000, TROM 1000, TRPT 1000, TUBA 1000, VLA 1000, VLN 1000, VOIC 1000)

PEDAGOGY. 2 hours. MPED in the area of individual performance; COMP 1000 for composition; MUED 2140 for jazz studies.

OTHER MUSIC. 4 hours. MUSO 1201, 1400, 1410, 1420 (required for voice only); 4 hours of 1100-level performance instruction or MUED 1010-1040 and 3 hours MUTH 3110 (required for composition only); MUSO 1130 (required for percussion only); 3 hours from JAZZ 1210, 1220, 1230, 1150, or MUTH 3120 (required for jazz studies only); 2 hours of VOIC 1100, one in each of the first two semesters in residence (required for jazz studies voice only)

MUSIC ELECTIVES. To complete a minimum of 63 hours in music.

DISCRETE AREA OF COMPETENCE. Minimum of 18 hours in a specific field outside of music, such as a minor or major in another school, a pre-professional course of study, or a self-designed interdisciplinary area. Self-designed interdisciplinary areas and new concentrations with a significant number of courses from another Vanderbilt school/college may be developed in consultation with the appropriate department. Must be declared no later than the 10th day of the first semester of the junior year.

LIBERAL ARTS. 30 hours (see full requirements below)

IMMERSION VANDERBILT.

FREE ELECTIVES. To complete 126 hours

Liberal Arts Core

The liberal arts core affords music students the opportunity to develop a broad-based understanding of intellectual endeavors and methods in a variety of disciplines, to explore the interconnectedness of music, arts, and other humanistic pursuits, and to articulate their thinking in clear and effective language. The curriculum, which provides maximum flexibility for each student, requires a minimum of 30 hours (33 hours for composition majors), satisfied through required categories as noted below. Students electing a second major outside of music

complete only the Blair liberal arts core; they are not expected to fulfill the core requirements (such as AXLE) of another Vanderbilt school or college. Hours earned toward the Blair liberal arts core may also be counted toward a second major or minor, if appropriate. Students admitted with a deficiency relative to high school credits must plan their liberal arts work to overcome the deficiency. 1001 courses do not count for liberal arts core credit.

English/writing (6 hours)

Students must complete writing course MUSL 2200W during the first year. A second English/writing course* of at least three credit hours, chosen from:

- Advanced Placement or International Baccalaureate credits in English/ Writing (consult the chapter on Admission for current policy)
- First year writing seminars (1111) in any discipline
- Writing courses in the English language in any discipline, designated by W in the course
- English: all courses
- Communication Studies: 1500, 1850
- MUSL 2330

*Students with a score of 770 on the Evidence-Based Reading and Writing section of the SAT with a minimum score of 39 in Writing and Language, or with a score of 35 on the English portion of the ACT, may exempt the second English/writing course, substituting 3 hours of any academic elective. Students who do not present a score of 660 on the Evidence-Based Reading and Writing section of the SAT test (with a score of 27 in Reading and 28 in Writing and Language), or a score of 30 on the English portion of the ACT test, must enroll in English 1100 in the first semester.

Humanities (9 hours) HUMANITIES REQUIREMENTS

MUSL 2100. Students should complete this required course during the first year.

Six additional hours of humanities electives (listed below)

For composition majors (B.Mus.), 15 hours minimum, including MUSL 2100: one year of French, German, or Italian; and 6 hours chosen from 2000-level or higher art history, 2000-level or higher English, and 2000-level or higher philosophy.

For voice performance majors (B.Mus.), 9 hours: MUSL 2100 and 6 hours (two semesters) chosen from French, German, and Italian.

HUMANITIES ELECTIVES

African American and Diaspora Studies: 1506 and all HCA-designated courses

Anthropology: All HCA-designated courses

Arabic: All courses

Aramaic and Classical Syriac: All courses

Asian Studies: 1201, 2100W, 2511, 2512, 2513W, 2607, 2608, 3151

Catalan: All courses

Chinese: All courses

Cinema and Media Arts: All courses except W courses

Classics: All, except SBS-designated courses

English: All courses

European Studies: All HCA-designated courses

French: All courses

Gender and Sexuality Studies: All HCA- and US-designated courses, 2239, 2248

German: All courses

Greek: All courses

Hebrew: All courses

Hindi-Urdu: All courses

History of Art: All courses (art studio courses excluded)

Humanities: All courses

Italian: All courses

Japanese: All courses

Jewish Studies: All HCA- and US-designated courses

Korean: All courses

Latin: All courses

Medicine, Health, and Society: All HCA-designated courses

Musicology/Ethnomusicology: 1111-02, 1111-03 (Music and Modernism; Shakespeare and Music), 1300, 1610, 3155

Philosophy: All courses except 1003 and 3003

Portuguese: All courses

Religious Studies or Divinity School: All courses

Russian: All courses

Spanish: All courses

Theatre: All courses offered for AXLE credit

Tibetan: All courses

Ugaritic: All courses

History, Social Science (3 hours) HISTORY

Classics: Only SBS designated courses

History: All courses

Musicology/Ethnomusicology: 1111 (Music and Global Health), 2110, 2150, 2600

SOCIAL SCIENCE

African American and Diaspora Studies: All courses except 1506 and HCA designated

American Studies: 2100, 3890

Anthropology: All courses except HCA designated

Asian Studies: All courses except HCA designated

Communication Studies: All AXLE courses except HCA designated

Economics: All courses offered for AXLE credit

European Studies: All courses except HCA designated

Gender and Sexuality Studies: All courses except HCA and US designated

Human and Organizational Development (Peabody): All 3-hour courses except 1115 and practica

Interdisciplinary Studies: 3001

Jewish Studies: All SBS-, INT-, and P-designated courses

Latin American Studies: All AXLE courses

Medicine, Health, and Society: All SBS-, INT-, and P-designated courses

Musicology/Ethnomusicology: MUSL 1111 (Music and Global Health), 2110, 2150, 2600

Political Science: All courses

Psychology (A&S): All courses except MNS designated

Psychology and Human Development (Peabody): All 3-hour courses from 1205-3800 inclusive

Public Policy Studies: All courses

Sociology: All courses

Mathematics, Natural Science (3 hours)

Students who score below 550 on the SAT Math Section or below 22 on ACT Math should take MATH 1010 or 1005. For integrated studies/teacher education majors, 3 hours statistics (PSY-PC 2110 [Peabody]) or calculus (MATH 1010, 1011, 1100, 1200, 1201, 1300, 1301).

MATHEMATICS

Computer Science: CS 2212

Mathematics: All courses

Philosophy: 1003 and 3003

Political Science: PSCI 2259

Psychology (Peabody): PSY-PC 2110

NATURAL SCIENCE

Astronomy: All MNS-designated courses, including accompanying labs

Biochemistry & Chemical Biology: All courses designated for AXLE credit, with accompanying labs

Biological Sciences: All AXLE courses, with corequisite labs

Chemistry: All AXLE courses, with corequisite labs

Earth and Environmental Sciences: All MNS-designated courses

Neuroscience: All MNS-designated courses

Physics: All MNS-designated courses, including accompanying labs

Psychology: All MNS-designated courses

Academic Electives (9 hours)

For composition majors (B.Mus.), 2-6 hours, to complete 33 hours in liberal arts.

For integrated studies/teacher education majors, a total of 9 hours, including specifically EDUC 1220 (3 hours) and SPED 1210 (3 hours). For voice performance majors (B.Mus.), 5-9 hours to total 30 hours in liberal arts.

Academic electives, drawn from courses earning 3 or more credits, may include:

- Any course listed in the Liberal Arts Core
- Non-music courses in American studies, business (BUSA), computer science, data science, engineering science, human and organizational development
- Any course in the Divinity School

Practicums and internships may not count as academic electives.

Free electives (sufficient to complete 126 hours)

Any course in any Vanderbilt school.

Note: MWEL courses and MUSO 1240 and 1241 count only as free electives for Blair majors.

The First Year (Engineering)

The first-year curriculum for all engineering disciplines is:

Specimen Curriculum

FALL SEMESTER		Semester hours
CHEM 1601, 1601L	General Chemistry and Laboratory	4
MATH 1300	Accelerated Single-Variable Calculus I	4
ES 1401-1403	Introduction to Engineering	3
	Elective (Liberal Arts Core Elective preferred)	3
ES 1115	First-year Engineering Seminar (optional)	1
VV 0700	Vanderbilt Visions	0
	Total	14-15

SPRING SEMESTER		Semester hours
Basic Science‡	Basic Science Course with Laboratory (requirements depend upon major)	4
MATH 1301	Accelerated Single-Variable Calculus II	4
PHYS 1601, 1601L	General Physics I and Laboratory	4
CS 1100, 1101, 1103, or 1104*	Computer Science Course	3
ES 1001	Engineering iCommons Seminar (optional)	1
	Total	15-16

‡ Biomedical engineering and chemical engineering majors must take CHEM 1602 and 1602L; electrical and computer engineering, and mechanical engineering majors must take MSE 1500 and 1500L or CHEM 1602 and 1602L; and civil engineering and engineering science majors should consult their program’s basic science and technical elective requirements for approved courses.

* Computer science majors must take CS 1101 or 1104. Electrical and computer engineering majors must take CS 1100 or 1101 or 1104. Biomedical engineering majors must take CS 1101 or 1103 or 1104.

The Undergraduate Program (Peabody)

Peabody College offers the bachelor of science with majors in elementary education, secondary education, special education, cognitive studies, child development, child studies, and human and organizational development. These undergraduate programs are designed to prepare students for professional careers in their chosen fields. Programs for Peabody students include course work in a Liberal Education Core, a professional core, a major area of specialization, and electives. Peabody also provides professional education courses for College of Arts and Science students who want to prepare for teacher licensure.

The bachelor of science is granted on the basis of 120 semester hours of college work with a final grade point average of 2.000, and completion of the Liberal Education Core and the requirements of the major.

Liberal Education Core Program

In pursuit of breadth of knowledge and understanding about the world in which they live, all undergraduates complete the requirements of the Liberal Education Core program. This Liberal Education Core component of all Peabody undergraduate majors is intended to provide students with a solid foundation in the arts and sciences. The core curriculum incorporates the study of human conditions that are universal. The Liberal Education Core involves study in the following areas:

Communications. The study of language in its written and spoken forms.

Mathematics/Quantitative Analysis. The study of mathematical concepts and procedures.

Social Sciences. The study of the past—both the heritage of the United States and the more global human story.

Humanities. The study of the universal language of the arts.

Natural Sciences. The study of scientific process and interrelationships among the sciences.

Through the study of these universal subjects, concepts, and modes of thought, students gain a broad foundation transferable to their futures. They will continue to grow within society and the classroom and will look at problems from different perspectives while maintaining curiosity.

Courses identified to fulfill the Liberal Education Core requirement for each undergraduate major are listed in Peabody's *Undergraduate Handbook* (https://peabody.vanderbilt.edu/office-academic-services/).

Courses used to satisfy these core requirements may also be counted toward the fulfillment of requirements in an academic major. Special topics courses are ordinarily not acceptable for meeting Liberal Education Core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable for meeting Liberal Education Core requirements.

Transfer students may use credits from other colleges to fulfill Peabody's Liberal Education Core requirements if the credits are equivalent to the courses offered at Vanderbilt. For transfer students, credits are evaluated when the student enrolls at Peabody in order to determine which transfer courses will substitute for Peabody's Liberal Education Core requirements. Requirements still to be fulfilled will be noted at that time.

Theatre

CHAIR Phillip N. Franck

DIRECTOR OF UNDERGRADUATE STUDIES E. Christin Essin

PROFESSORS EMERITI Robert A. Baldwin, Jon W. Hallquist, Terryl W. Hallquist, Cecil D. Jones Jr.

PROFESSOR Phillip N. Franck

ASSOCIATE PROFESSORS E. Christin Essin, M. Leah Lowe

ASSISTANT PROFESSOR Elizabeth Cizmar, Kristyl Tift

ASSISTANT PROFESSORS OF THE PRACTICE: Alexandra Sargent Capps, Elizabeth Haynes

WRITER IN RESIDENCE Krista Knight

COURSES OFFERED: THTR

Vanderbilt's Department of Theatre offers a vital center of innovative scholarship, teaching, creative expression, and exploration. The study of theatre introduces students to a major form of literature and performing arts, thereby developing a familiarity with one of the greatest cultural heritages and an understanding of human behavior and civilization as it is reflected through the ages. Theatre uniquely shapes perceptions about life into an active experience. Because this process encourages critical thought and discussion, the department provides a singular and important aspect of a liberal arts education through its production season and course work. Viewed as a practical extension of the department’s curriculum, plays are produced in Neely Auditorium, a laboratory where students learn to form creative expressions as well as to evaluate and to critique them.

On one level, the Department of Theatre helps the general liberal arts student develop reasoned standards of criticism and an understanding of the intimate correlation between the theatre and the society which it reflects, preparing Vanderbilt graduates for successful careers in theatre as well as other fields of interest. For its majors and minors, the department provides a more detailed and specialized study of the major components of theatrical endeavor, allowing opportunities for the practical application of course work in the productions staged at the theatre. In many cases, the department helps to prepare students with professional aspirations as either artists or teachers in their specialized area of interest.

Work in the productions at Vanderbilt reflects the instruction that occurs in the classroom at Neely Auditorium. Because the academic endeavors require hands-on, project-oriented teaching, students can expect small-to-medium class enrollments and numerous opportunities for exposure to faculty instruction outside of the classroom. The department’s curriculum includes courses in acting, directing, design, technology, dramatic literature, theatre history and criticism, and playwriting. The Department of Theatre frequently offers a Maymester program of study of theatre in London and the U.K. Students can either major or minor in theatre at Vanderbilt. The major consists of a minimum of 35 credit hours that include courses in acting, directing, dramatic literature, theatre history/criticism, design, technology, and stagecraft. For the minor, students select one of three more narrowly focused tracks (dramatic literature/theatre history, acting/directing, or design/technology) and complete a minimum of 18 credit hours of course work.

Students may also learn about theatre by studying with Coe Artists, distinguished guest-artist professionals brought to campus each year to benefit majors, minors, and those with a serious interest in theatre. Weeklong master classes are taught by playwrights, actors, designers, and directors from the professional world of theatre, television, and film. Previous Coe Artists have included such celebrated artists as Tim Miller, Sojourn Theatre, Katie Pearl, Lisa D’Amour, and Shawn Hall. Theatre also brings professional directors and designers as Coe Artists to campus to work within the department’s production season.

Students have the opportunity to participate in a variety of theatrical experiences working with professional guests, as well as hear professional artists speak as guest lecturers.

Theatre majors and minors from Vanderbilt have entered a wide variety of professions and post-graduate opportunities after they graduate. Those seeking employment in the fields of theatre, film, radio, or television have secured positions at appropriate graduate schools or internships with professional companies immediately

following their study at Vanderbilt. Many distinguished professional theatre companies across the nation, television networks in New York, and the film industry in Los Angeles include Vanderbilt University Theatre alumni as writers, actors, designers, technicians, dramaturgs, and stage managers. In addition, many Vanderbilt theatre students have secured teaching assignments at either the college/university level (once they have completed appropriate post-graduate education) or the elementary/secondary education level. Theatre also prepares students for success in other professions including medicine, law, education, policy, engineering, and business to name a few.

The study and practice of theatre offers individuals opportunities to participate through a variety of means: to collaborate with all other members of a production team; to express elements of abstract thought in both oral and written form; and to develop the critical ability to assess and analyze aesthetic choices.

Program of Concentration in Theatre

Students majoring in theatre are required to complete a minimum of 35 credit hours in courses concerned exclusively with theatre and dramatic literature. Required courses are 1010/1010W or 1111, 1711, 1611 2651, and 4961; two courses chosen from 2201, 2202W, 2204, and 4201; one course chosen from 3721, 3761, and 3741; additional 9 credit hours chosen from other theatre courses above the 2000 level.

Honors Program

The Honors Program in Theatre is designed to afford superior students the opportunity to pursue more intensive work within their major field. Admission requirements are: (1) completion of junior year; (2) completion of at least 21 credit hours of the theatre major; (3) 3.3 minimum cumulative GPA and a 3.5 minimum GPA in courses counting toward the major. Candidates who successfully complete the following requirements may graduate with honors or highest honors: (1) maintain the aforementioned GPA throughout the senior year; (2) complete all requirements of the theatre major; (3) complete 6 credit hours of independent research 4998–4999 (Honors Research and Thesis) normally taken during the senior year; (4) write an honors thesis to be completed by the second semester of the senior year; (5) successfully complete an honors oral examination on the topic of the thesis.

Minor in Theatre

A minor in theatre requires a minimum of 18 credit hours of courses in the department. All students minoring in theatre must complete 1010/1010W or 1111 and 4201. In addition, each student must complete one of the following three clusters: Dramatic Literature/Theatre History: 2201, 2202W, 2204, and 3201W; Acting/Directing: 1611, 3611, 4611, and 2651; Design/Technology: 1711 is required; choose three from 3721, 3761, 3741, or 3781.

Life at Vanderbilt

Accommodations for Students with Disabilities

Student Access provides accommodations to students with disability-related limitations. Common accommodations include, but are not limited to, extended time for testing, assistance with locating sign language interpreters, audio textbooks, physical adaptations, supplemental notes, and reading services. Students may also request accommodations related to housing, dining, and transportation. Accommodations are determined on an individual, case-by-case basis. Specific concerns pertaining to student accommodations or access on campus should be directed to the Office for Student Access (studentaccess@vanderbilt.edu) or by calling (615) 343-9727. For additional information please visit the Student Access website: vanderbilt.edu/student-access.

Bishop Joseph Johnson Black Cultural Center

The Bishop Joseph Johnson Black Cultural Center provides educational and cultural programming designed to highlight the history and cultural experiences of African Americans. Initially referred to as “the Afro House,” in 1984, the center was named in honor of the first African American student admitted to Vanderbilt University in 1953, Bishop Joseph Johnson (B.D. ’54, Ph.D. ’58). The BCC activities focus on providing student support and development, campus enrichment, and community engagement.

Student Support and Development (Inclusion)

One of the major aims of the BCC is student support and development. To accomplish this objective, the BCC offers student-driven programming, mentoring initiatives, organizational meeting spaces, service opportunities, and leadership skills training. The BCC also serves as a haven for students, with opportunities for informal fellowship with other students of all levels and backgrounds as well as with faculty and staff.

Campus Enrichment (Diversity)

With campus programming focused on Africans and African Americans, the BCC enriches the overall campus environment by promoting intercultural competence. Specifically, the BCC works with numerous campus partners to sponsor lectures, musical performances, art exhibitions, films, and discussions on African and African American history and culture.

Community Engagement (Equity)

Additionally, the BCC engages in community outreach and service by working with various civic and cultural groups in the Nashville area. Through community programs and by supporting students as they tutor and mentor young people from underserved areas in the city, the BCC advocates for social justice and equity on campus and in the larger community.

The BCC is located in the center of campus directly behind Buttrick Hall and across from the main campus mailroom. For more information, please call (615) 322-2524 or visit vanderbilt.edu/bcc.

Career Center

Vanderbilt graduates go everywhere and their careers are not necessarily tied to their majors. The Career Center prepares students for life after Vanderbilt by helping them explore career options, develop experience through internships, discover their strengths, and build resilience to be competitive in a rapidly changing world of employment.

The Employer Relations team builds relationships with key employers, nationally and internationally, to support a robust on-campus recruiting program as well as provide Career Fairs, Information Sessions, and other activities designed to inform and connect students with a broad spectrum of career opportunities. Professional career coaches provide comprehensive career assistance to undergraduate students of all majors. Services include resume and cover letter editing, mock interviews, and special workshops and programs. The Career Center also supports students seeking scholarships and fellowships, including the Rhodes, Marshall, and Fulbright.

Students can begin mapping out their futures by meeting with a career coach during drop-in hours or by scheduling an appointment. By working with a career coach, students can explore their interests in various fields, learn how to tell the story of their education and experience, and apply to work in whatever field of employment interests them. For more information about the Career Center, visit vanderbilt.edu/career.

Center for Spiritual and Religious Life

The Center for Spiritual and Religious Life provides opportunities to explore and practice religion, faith, and spirituality and to more deeply understand one’s personal values and social responsibility via educational programming, encounters with various faith perspectives, and engagement with religious and spiritual communities. The Center welcomes and serves all students, faculty, and staff and provides an intellectual home and ethical resource for anyone in the Vanderbilt community seeking to clarify, explore, and deepen understanding of their lives and/or faith.

Recognizing the importance of exploring one’s faith in community, the office facilitates opportunities for individuals of a shared faith to worship/practice their particular religious tradition. Whether guided by one of our affiliated chaplains or a student-run religious organization, these groups foster a sense of community and common values. For a complete listing of campus religious groups, resources, services, and programming opportunities, visit vanderbilt.edu/religiouslife.

Counseling and Advisory Services

Advising is an important part of Vanderbilt's central mission to help each student achieve individual goals. Many support services are provided, including pre-major and major academic advising and career and personal counseling. Residence hall staff are continuously on call.

Deans and professional staff in academic programs, in all areas of Student Affairs, and in other areas of the university offer counseling and advising services to students:

- Bishop Joseph Johnson Black Cultural Center
- Career Center
- Center for Social Justice and Identity
- Center for Spiritual and Religious Life
- Center for Student Wellbeing
- College of Arts and Science's Pre-major Academic Advising Resources (CASPAR)
- English Language Center
- Equal Opportunity and Access
- Faculty Advisers
- Health Professions Advisers
- Housing and Residential Experience
- International Student and Scholar Services
- Margaret Cuninggim Women's Center
- Office of LGBTQI Life
- Pre-Business Advisers
- Pre-Law Advisers
- Project Safe
- STEM Help Desks in The Ingram Commons
- STEM Help Desks in Featheringill
- Student Access Services
- Student Care Coordination
- Student Health Center
- Student Organizations, Leadership and Service
- Teacher Education Adviser, Arts and Science
- Teacher Licensure Office, Peabody College
- Title IX
- Tutoring Services
- University Counseling Center
- Writing Studio

Cultural Activities on the Campus

Working through volunteer student committees that plan and execute the programs, the Student Affairs office sponsors twelve to fifteen dance, music, and theater events each year, featuring renowned artists. Student committees select the artists and handle all arrangements for the performances.

Vanderbilt's cultural organizations annually produce festivals that showcase traditional and modern dances, art, music, and poetry to increase awareness of the many cultures represented on campus. The events include Lunar New Year Festival by the Asian American Student Association, Diwali by Masala-SACE, and Café Con Leche by the Association of Latin American Students, to name just a few.

The Office of Arts and Campus Events coordinates numerous campus galleries that regularly exhibit contemporary artwork. Located directly across from Sarratt Cinema, the Sarratt Gallery creates unique and intriguing exhibits that offer visitors a quiet space to enjoy and reflect on the work of talented artists. Exhibits often support the classes taught by Sarratt Art Studios while offering unique ideas and approaches to traditional mediums. The gallery is free and open to the public and is open seven days a week during school semesters and the summer.

Vanderbilt University Theatre annually presents four major productions and several one-act plays for which all students are invited to audition. Other campus groups and touring companies also give dramatic presentations during the year.

Vanderbilt has several student organizations that focus on dance performance. Examples of these groups include the hip hop group Vibe, Momentum contemporary dance group, and Vida which focuses on Latin styles of dance. Dance, theater, and vocal groups present a showcase, *Spotlight,* every fall to encourage interested students to audition to be considered members for the year.

Sarratt Art Studios offers noncredit studio art classes in clay, photography, jewelry, book arts, graphic design, watercolor and more. Located on the main floor of Sarratt Student Center, classes meet one night a week for ten weeks during fall, spring, and summer semesters. A schedule of classes and more information can be found at vanderbilt.edu/sarrattart. Tuition and material fees are affordable and classes are taught by some of Nashville's finest studio artists. Sarratt Art Studios also hosts the Annual Sarratt Holiday Arts Festival in the Sarratt Gallery which features affordable handmade gift items from local artisans and vendors in the Nashville area.

The Vanderbilt performing arts community (VPAC) represents more than thirty student groups devoted to providing opportunities for performers to showcase their talents. Student organizations that schedule annual performances range from comedy groups to dance organizations, to the musical theater of Vanderbilt Off-Broadway. Campus concerts are presented each year by the Concert Choir and Chamber Singers; Chamber Choir, Symphonic Choir, and Opera Theatre; Vanderbilt Orchestra and Chamber Orchestra; the Wind Ensemble and Jazz Band; and numerous student a cappella groups.

Outstanding scholars and speakers visit the university frequently, enriching the academic and cultural life of the campus in many ways. Various academic departments sponsor regular speaker programs, as do the student-initiated Impact Symposium, the Speakers Committee.

David Williams II Recreation and Wellness Center

Vanderbilt's David Williams II Recreation and Wellness Center is a fully functioning facility for Vanderbilt students, faculty, and staff.

More than two-thirds of Vanderbilt students utilize program spaces such as fitness rooms, participate in club sports, intramurals, group fitness classes, and many more of the student program offerings. The variety of programs available for meeting students' diverse interests include over 30 club sports teams, and intramural sports such as softball, flag football, basketball, table tennis, and soccer.

The facility features a 289,000-square-foot layout that houses four full-sized courts for basketball, volleyball, and badminton; five racquetball and two squash courts; four-lane bowling alley; five group fitness classrooms; more than 14,000 square feet of weight and fitness room space; rock-climbing wall; seven multipurpose rooms; and an indoor field house featuring 120-yard turf field surrounded by a 300-meter track. The exterior surroundings include more than seven acres of field space, including three natural grass fields and one turf field.

There is a diverse selection of group fitness classes offered weekly, and a variety of wellness offerings that students can benefit from such as healthy eating through Vandy Cooks and personalized nutrition coaching.

If you are seeking outdoor adventure, you can create your own adventure trip with tips and gear from the outdoor rental center.

The Student Services fees support our facilities, fields, and programs (see Financial Information). Student spouses must also pay a fee to use the facilities.

For additional information, please visit us at vu.edu/vandyrec.

Eating on Campus

Vanderbilt's dining halls are a key part of campus life, and our meal plans are designed to enhance students' residential college experience. We proudly offer comprehensive meal plans in our network of dining halls, retail dining locations, cafés, Munchie Mart convenience stores, and even at local restaurants and food trucks. **All Vanderbilt students living on campus are required to participate in a meal plan based on their cohort year**.

Meal plans are loaded onto your Commodore Card or mobile wallet and consist of meals + flexible meal money. Simply tap your phone at a dining location, and the meal or Meal Money will automatically deduct from your account. Most dining locations are all-you-care-to-eat, while others offer meals consisting of an entree, side(s) and a drink. Vanderbilt students living on campus are required to participate in the following meal plans: First-year students living on campus participate in the First-Year Meal Plan of 335 meals per semester, second-year students living on campus receive 305 meals per semester, third-year students living on campus receive 305 meals per semester, and fourth-year students living on campus receive 225 meals per semester. Upper-division students also have the option to upgrade to a more comprehensive meal plan. For more information on Vanderbilt Campus Dining, including locations, hours of operations, and current menu information, visit vanderbilt.edu/dining.

English Language Center

Students wishing to focus on improving their English language use for the context of the U.S. academic setting may take classes and participate in programming at the ELC to support their academic success. The ELC's courses include Academic Speaking, *write*ELC, and Pronunciation. Throughout the academic year, academic workshops and one-to-one consultations for speaking, writing and pronunciation are also available through the ELC. The ELC is located at 1208 18th Avenue South. For more information, please visit vanderbilt.edu/elc.

Follett Higher Education at Vanderbilt

The Vanderbilt University Bookstore is operated by Follett Higher Education and is located at 2525 West End Avenue. This bookstore offers textbooks (new, used, digital, and rental), computers, supplies, dorm accessories, licensed Vanderbilt merchandise, and best-selling books.

The bookstore features extended hours of operation and hosts regular special events. Free customer parking is available in the 2525 garage directly behind the bookstore. For more information, visit bkstr.com/vanderbiltstore or call (615) 343-2665.

International Student and Scholar Services

ISSS advises and supports international students and scholars attending Vanderbilt. Through advising appointments, workshops, and programming, ISSS facilitates the understanding of a student's non-immigrant status and what is needed to maintain it. ISSS is responsible for overseeing, monitoring, and reporting international student and scholar data through SEVIS to the Department of Homeland Security, along with staying abreast of immigration policy and regulations and reconciling student and government databases. The office works with campus partners to raise awareness throughout the Vanderbilt community of issues important to international students and scholars. Additionally, ISSS provides programming and person-centered advising to help students and scholars during their transition to Vanderbilt and throughout their time here. For additional information on ISSS services, visit vanderbilt.edu/isss.

International Student Orientation

International Student Orientation takes place in the fall of each year before the official start of classes. It is mandatory for all first-year international students entering Vanderbilt University, and it is scheduled so that they can also attend other orientation programs required by the schools and colleges. During this time, international

students will learn more about life at Vanderbilt and interact with faculty, staff, and students. International students may also request free airport pick-up before orientation. Incoming international students are paired with current Vanderbilt students through iLEAD, a mentorship program and student organization. The main purpose of iLEAD is to create linkages between new students and the community and provide educational and social programs to ease transition and increase success at Vanderbilt.

Margaret Cuninggim Women's Center

The Margaret Cuninggim Women's Center leads co-curricular campus initiatives related to women's and gender issues. The center partners with many departments, programs, and individuals across campus to raise awareness about the ways in which gender shapes and is shaped by our lived experiences. Because its aim is to make the Vanderbilt community more inclusive and equitable, the center encourages all members of the Vanderbilt community to take part in its events and resources.

The Women's Center celebrates women and their accomplishments and fosters empowerment for people of all identities. The center offers education, support and advocacy around a variety of issues, including gender stereotyping, gender equity, leadership, parenting, body image, disordered eating, pregnancy and reproduction, sexual health, and more. The Women's Center is open Monday through Friday, 8:00 a.m. to 5:00 p.m. and is located at 2304D Vanderbilt Place, Franklin House. For more information, please call (615) 322-4843, email womenctr@vanderbilt.edu, or visit vanderbilt.edu/womenscenter.

Nondiscrimination, Anti-Harassment, Anti-Retaliation, and Sexual Misconduct

The Title IX Office (vanderbilt.edu/title-ix) and/or the Equal Opportunity and Access Office (vanderbilt.edu/eoa) investigate allegations of prohibited discrimination, harassment, and retaliation involving members of the Vanderbilt community. This includes allegations of sexual misconduct and other forms of power-based personal violence. Mary Roy is Vanderbilt's Title IX coordinator.

If you believe that a member of the Vanderbilt community has engaged in prohibited discrimination, harassment, or retaliation, please contact the Equal Opportunity and Access Office. If the offense is criminal in nature, you may file a report with Vanderbilt University Police Department.

The Title IX Office also facilitates the provision of supportive measures and other accommodations for students affected by sexual misconduct and power-based personal violence. Some examples of these supportive measures are no contact orders, adjusted course schedules, and housing changes.

Specific concerns pertaining to prohibited discrimination, harassment, or retaliation should be directed to the Equal Opportunity and Access Office at (615) 343-9336. Allegations of sexual misconduct and other forms of power-based personal violence, should be directed to the Title IX Office at (615) 343-9004.

Office of LGBTQI Life

The Lesbian, Gay, Bisexual, Transgender, Queer, and Intersex (LGBTQI) Life office is a welcoming space for individuals of all identities and a resource for information and support about gender and sexuality. LGBTQI Life serves the entire Vanderbilt community through education, research, programming, support, and social events. The office also serves as a comfortable study and socializing space, as well as a connection point to the greater Nashville LGBTQIA+ community. In addition, LGBTQI Life conducts tailored trainings and consultations for the campus and community. The Office of LGBTQI Life is located in the K. C. Potter Center, Euclid House, 312 West Side Row. For more information, please visit vanderbilt.edu/lgbtqi.

Official University Communications

Certain federal statutes require that information be delivered to each student. Vanderbilt delivers much of this information via email. Official electronic notifications, including those required by statutes, those required by university policy, and instructions from university officials, will be sent to students' Vanderbilt email addresses:

user.name@vanderbilt.edu. Students are required to be familiar with the contents of official university notifications, and to respond to instructions and other official correspondence requiring a response. Some messages will include links to the YES Message Center, which is a secure channel for official communication of a confidential nature. However, students should not wait to receive such a message, and should check YES frequently to remain current on official, confidential communications.

The university makes every effort to avoid inundating students with nonessential email (often called “spam”), and maintains separate lists from which students may unsubscribe for announcements of general interest.

Directory information should be kept current. Students may report address changes, emergency contact information, and missing person contact information via the web by logging in to YES (Your Enrollment Services) https://yes.vanderbilt.edu and clicking on the Personal Information link.

Parking and Vehicle Registration

Parking space on campus is limited. All motor vehicles operating on or parking on Vanderbilt University property at any time by students, faculty, and staff must be registered with Parking Services located at 111 28th Ave S. A parking permit fee is charged. University parking regulations are published annually and are strictly enforced. More information is available at vanderbilt.edu/traffic_parking.

By university policy, freshmen may not purchase a parking permit or park on campus at any time.

Bicycles must be registered with Vanderbilt University Public Safety.

All full- and part-time students can ride WeGo Public Transit anytime for any trips in Nashville and Middle Tennessee using local and regional buses, the WeGo Star commuter rail train, and WeGo Access paratransit service. To utilize these services, a valid physical student ID card is required for boarding the bus or train, available from the Card Services Office. More information on how to ride WeGo can be found at vu.edu/bus.

Information on transportation options available to campus and around Nashville can be found at vanderbilt.edu/movevu/transportation-options.

Project Safe Center

The Project Safe Center partners with students, faculty, and staff to create a campus culture that rejects sexual misconduct and serves as a resource for all members of the Vanderbilt community. The Project Safe Center provides support to survivors of intimate partner violence and engages the campus community in prevention of sexual assault, sexual harassment, dating and domestic violence, and stalking.

Bystander intervention training, online educational modules, and a variety of programs and presentations on consent, healthy relationships, and violence prevention are available through the Project Safe Center. A 24-hour support hotline answered by Project Safe’s victim resource specialists is available at (615) 322-SAFE (7233).

The Project Safe Center, located at 2304H Vanderbilt Place (in the Cumberland House along West Side Row), is open for drop-in appointments Monday through Friday, 8:00 a.m. to 5:00 p.m.

For more information, please call (615) 875-0660 or visit vanderbilt.edu/projectsafe.

Residential Living

Vanderbilt University requires all unmarried undergraduate students to live in university housing on campus for their entire undergraduate career. This commitment to residential education is clearly expressed in the university's residential requirement: "All unmarried undergraduate students must live in residence halls on campus during the academic year, May session, and summer sessions. Authorization to live elsewhere is granted at the discretion of the director of housing assignments in special situations or when space is unavailable on campus" (*Student Handbook*).

Residential living at Vanderbilt began in the 1880s when six cottages were constructed in response to a demand for on-campus housing. In the fall of 2021, 5,989 students lived on campus, comprising about 84 percent of the undergraduate student body. Housing for graduate and professional students is not available on campus.

Undergraduate Housing

Several types of housing are offered to meet the needs of a diverse student body—suites, singles, doubles, apartments, and lodges.

Some housing is segregated by gender; most housing is coresidential. In the coresidential areas, men and women may be housed on the same floor.

Six officers from each fraternity and sorority may live in their fraternity or sorority houses.

The campus data network is available by Wi-Fi in all residence halls on campus. All residents are provided with premium Xfinity television programming over IP through the data network.

First-Year Students

First-year students live on The Martha Rivers Ingram Commons. The Ingram Commons comprises ten residential houses, the home of the dean of The Ingram Commons, and The Commons Center. The ten houses are Crawford, East, Gillette, Hank Ingram, Memorial, Murray, North, Stambaugh, Sutherland, and West. Each house is led by a resident faculty head of house.

East, Gillette, Memorial, North, and West houses are historical buildings renovated for The Ingram Commons. Crawford, Hank Ingram, Murray, Stambaugh, and Sutherland were constructed between 2006 and 2008. All houses are air conditioned and fully sprinklered for fire safety. Access to all residence halls is controlled with a card access system. Students on The Ingram Commons live in traditional double or triple rooms. All student rooms have basic room furnishings that include a loftable bed, two chests, a desk, chair, and a closet for each resident, and window blinds. Lounges, study rooms, seminar rooms, music practice rooms, and laundry facilities are located within The Ingram Commons.

Upper-division Students

Upper-division students live in twenty residence halls located across campus. Five of these are upper-division residential colleges led by resident faculty heads. Other upper-division residential areas include Alumni Lawn, Branscomb Quadrangle, Highland Quadrangle, and Village at Vanderbilt. All residence halls are air conditioned. Access to all residence halls is controlled with a card access system.

Warren, Moore, E. Bronson Ingram, Nicholas S. Zeppos and Rothschild are the first five residential colleges for upper-division students. Together, the five colleges house 1,650 students. A faculty head lives in each college and each is assisted by a program coordinator. The colleges offer a mix of living accommodations: suites for six, five, and four students; traditional double rooms; and traditional single rooms.

Alumni Lawn comprises McGill, Cole and Tolman, and McTyeire halls. McGill Hall houses approximately one hundred students in primarily single rooms with community bath facilities on each floor. Housing slightly more than one hundred students each in single rooms, Cole and Tolman halls house female and male populations, respectively. McTyeire Hall houses approximately 90 students in single rooms with community bath facilities on each floor.

Branscomb Quadrangle (Lupton, Scales, Stapleton, and Vaughn houses) offers two physical arrangements: (a) double rooms with a community bath on each floor and (b) suites comprising two double rooms connected by a half bath (with a community bath on each floor). The complex contains laundry facilities, lounges, study rooms, music practice rooms, and a quick-service convenience store.

At the south end of the campus is Highland Quadrangle comprising Chaffin Place, Lewis House, Morgan House, and Mayfield Place. Chaffin contains two-bedroom apartments that house four students. Students share efficiencies and one- and two-bedroom apartments in Morgan and Lewis houses. In Mayfield, units of ten single rooms cluster around a two-story living room area. A laundry facility and a convenience store are located in this residential area.

The Village at Vanderbilt provides apartment living in the South Tower and the Townhomes. In the South Tower, there are 1-bedroom apartments for two students, 2-bedroom apartments for four students, and 3-bedroom apartments for 6 students. The townhomes are 2-bedroom apartments for three students each.

Living Learning Communities

McGill Hall is the home of the McGill Project, designed to stimulate and foster discussion and exploration of philosophical issues between students and faculty. Faculty members meet with residents in McGill for informal discussion (open to all students) and formal class work. Residents also plan and participate in social events hosted by the student-run McGill Council. A faculty-in-residence lives on the first floor.

Mayfield Place is the site for the Mayfield Living Learning Lodge program. Lodges are set aside for groups of ten students who want to establish their own special-interest lodges. Such programs have included arts, community service, computers, environment/recycling, world religions, music, and wellness. Each lodge selects a faculty adviser who provides guidance throughout the year.

Residential Experience Administration

The residential community at Vanderbilt is divided into areas, each of which has a full-time professional living on campus. Upper-division students serve as head residents and resident advisers in the residence halls. Eight area coordinators, and six graduate area coordinators also live on campus. For more information, go to vanderbilt.edu/ohare/.

Residence halls for first-year students have RAs on each floor. Area coordinators and their student staff are responsible for maintaining an atmosphere conducive to the students' general welfare and education.

Room Assignment

First-Year Students. First-year students may apply for housing after payment of their matriculation fees. Students will be assigned to double or triple rooms. Roommate requests are considered. However, when the supply of double rooms is exhausted, roommate requests will not be honored for students assigned to triple rooms. Admission to the university does not guarantee assignment to a particular building, kind of room, or a particular roommate or hallmate.

Returning Upper-Division Students. Returning unmarried upper-division students receive their housing assignments through a random selection process conducted during the spring semester. Eligibility for

participation is determined by the director of housing assignments.

Transfer and Former Students. Requests for room assignments by new transfer students and former students returning to campus are made through the Office of Housing and Residential Experience, and are determined by the date of deposit. The university tries to accommodate as many transfer students as possible, but acceptance at Vanderbilt does not guarantee campus housing.

Schulman Center for Jewish Life

The 10,000-square-foot Ben Schulman Center for Jewish Life is the home of Vanderbilt Hillel. The goal of the center is to provide a welcoming community for Jewish students at Vanderbilt and to further religious learning, cultural awareness, and social engagement. Vanderbilt Hillel is committed to enriching lives and enhancing Jewish identity. It provides a home away from home, where Jews of all denominations come together, united by a shared purpose. The Schulman Center is also home to Grin's Cafe, Nashville's only kosher and vegetarian restaurant. For further information about the Schulman Center, please call (615) 322-8376 or email hillel@vanderbilt.edu.

Student Accountability

All persons enrolled in or taking courses—including those that involve, in whole or in part, online learning—at the University or in its study away programs, or participating in programs and activities of the University as students, even if not registered primarily at Vanderbilt, and students on official leaves from the University (medical, personal, disciplinary, or otherwise) fall under the jurisdiction of the accountability system from the time of their arrival on campus or matriculation, whichever is sooner, until degree conferral. This includes those taking part-time courses of study, participants in summer programs, participants in programs of the English Language Center, and transients during the summer or other sessions. Full-time or part-time status as a student has no bearing on accountability proceedings for students. A notification of the findings of an accountability meeting will be sent to the appropriate officer of the institution in which the students are primarily registered.

Policies governing student conduct are published in the Student Handbook, or by other reasonable means of notification.

Student Accountability, Community Standards and Academic Integrity has original jurisdiction over all matters of nonacademic misconduct, excluding sexual misconduct and discrimination cases, involving students.

Student Care Network

The Student Care Network is a holistic network of services and resources pertaining to health and wellness available to all Vanderbilt University students who are charged the Student Health Fee. Primary offices include Student Care Coordination, the University Counseling Center, the Student Health Center, and the Center for Student Wellbeing. Students also have access to a wide range of additional on-campus, virtual, and community resources through the Student Care Network – from the Vanderbilt Recreation and Wellness Center to the Project Safe Center – and a variety of community providers. To facilitate finding resources, students may refer to the Student Care Network website: vanderbilt.edu/studentcarenetwork/, or meet with Student Care Coordination at vanderbilt.edu/carecoordination/.

Medical Notification Policy

Absences & Coursework Adjustments – Dean's Notification

A Dean's Notification is provided to faculty when a student (1) has a serious illness, injury, or medical treatment or (2) is involved in a personal matter necessitating supportive measures to restore or preserve access to the University's educational programs and activities and (3) either situation is not reasonably likely to resolve immediately. An appropriate University official working directly with the student—including, but not limited to, staff from Student Care Coordination (SCC), the University Counseling Center (UCC), the Student Health Center (SHC), Residential Experience, Project Safe, and the Title IX Office—must make the determination that the situation qualifies for a Dean's Notification. Upon making that determination, the official will notify SCC or the

Title IX Office, as appropriate, to coordinate with the student's academic dean to formally request that instructors provide flexibility with coursework and/or absence policies. Alternatively, academic deans will apply the same analysis when a student directly approaches them with a request and may consult with SCC. It is the instructor's prerogative to determine what, if any, adjustments are appropriate.

Dean's Notifications are not reasonable accommodations as issued by Student Access, nor should they be used in lieu of a leave of absence. Dean's Notifications generally expire no later than two weeks after notice is sent by the academic dean to instructors. Adjustments needing more than two weeks should be evaluated by the appropriate University official to determine if accommodations or a leave of absence is more appropriate. Supportive measures issued by the Title IX Office may be extended beyond the initial two-week period on a case-by-case basis.

Absences & Coursework Adjustments **– Minor Illnesses & Routine Appointments**

Vanderbilt University expects students to be honest with their instructors about their ability to attend class and/or complete course work, and asks instructors to work with students on these issues. Therefore, the primary offices of the Student Care Network (SCC, UCC, SHC, and Center for Student Wellbeing (CSW)) do not provide notes for minor illnesses or routine appointments that may lead to missed classes and/or a delay in completion of assignments. Instead, the primary offices provide students with cards documenting visits to their office, which student may use in discussion with their instructors regarding absences and/or missed work to demonstrate that they sought care for a medical issues. The reason for the visit and any details of minor illnesses or routine appointments are not provided on the card. A student's right to privacy, particularly as it relates to medical information, is one of the important issues that guides this policy. In addition, since there is great variability in each student's response to minor illnesses, the primary offices cannot always predict which students will miss assignments and/or classes in response to such ailments. Honest communication between students and their instructors can better address these situations.

For more serious illnesses or medical emergencies resulting in absences or missed coursework, refer to the Dean's Notification section.

Student Care Coordination

Student Care Coordination (SCC) is committed to supporting undergraduate, graduate, and professional students in successfully navigating life events related to academic stress and/or medical, mental health, and/or other personal concerns that may interfere with a student's ability to achieve their academic and personal goals. This team of Student Care Coordinators are often the central and first point of contact for students to help identify needs and determine the most appropriate resources in Vanderbilt's Student Care Network and in the Nashville community to address concerns. Student Care Coordinators collaborate with students to develop a student success plan, share education about and facilitate connections to appropriate on and off-campus resources, and provide accountability through supportive follow up meetings. Student Care Coordinators work closely with campus partners, including the Center for Student Wellbeing, the University Counseling Center, the Student Health Center, Housing and Residential Experience, and faculty and staff to help maintain the safety and health of Vanderbilt students.

In addition, Student Care Coordination supports the Campus Assessment, Response, and Evaluation (CARE) Team and Welfare Panel and coordinates support for students returning from medical leaves of absence. Student Care Coordination's goal is for students to have the right support, in the right place, at the right time. Information about scheduling an appointment with Student Care Coordination is available at vanderbilt.edu/carecoordination/.

Confidentiality

Though staff typically have a background in mental health services, it is important to understand that work with a Student Care Coordinator is not counseling or therapy. The services of Student Care Coordination fall under the Family Educational Rights and Privacy Act (FERPA). This means the content of meetings with a Student Care Coordinator will be kept private to the extent possible; however, information may be shared on a need-to-know

basis with appropriate personnel within Vanderbilt University in order to coordinate and provide you with the best care. If it is necessary to share information with off-campus providers or others, you will be asked to sign a written release.

Student Health Center

The Student Health Center provides primary care and some specialty services for students. Services include routine medical care, chronic disease management, office-based gynecology, travel medicine, nutrition services, and sports medicine. The Student Health Center also has a lab and can perform some office-based tests and can also send samples to the Vanderbilt Medical Center laboratory as needed.

The Student Health Center's hours of operation are posted on the center's website: vumc.org/student-health/about-center. Students seeking treatment should call ahead at 615-322-2427 to schedule appointments. Online appointments are available for most types of appointments: vumc.org/student-health/online-appointments. Telemedicine appointments are also available for some types of visits.

Students with urgent issues will be seen on a "same-day" basis, and if no appointment time is available, will be worked in on a "first-come, first-served" basis, and triaged according to severity of illness.

Emergency on-call consultation services are available at 615-322-2427, 24 hours a day, seven days a week. More detailed information about services and health related topics may be found at the Student Health Center website: vumc.org/student-health/.

Immunization Requirements

The State of Tennessee requires certain immunizations and tuberculosis screening for all students (undergraduate, graduate, and professional). ***Students not in compliance with these mandated immunizations and tuberculosis screening will NOT be allowed to register for classes.*** Waivers for required vaccines may be granted for religious or medical reasons. Waiver requests are reviewed by the Student Health Center and Equal Opportunity and Access or Student Access. Instructions for providing waiver request documentation can be found on the immunizations requirements website: vumc.org/student-health/immunization-requirements-new-students.

Immunization requirements include:

1. **Meningococcal meningitis vaccine (one injection after age 16)** for all incoming students living in on- campus housing.
2. **Measles, mumps, and rubella (2 injections)** for all incoming students.
3. **Varicella vaccine (two injections)** for all students who have not had documented chickenpox or bloodwork proof of immunity.
4. **Tuberculosis screening,** which includes on on-line risk assessment followed by blood testing or skin testing when indicated.

All incoming students must upload a Student Health Center Immunization and Tuberculosis Screening Requirements form. Instructions and further information are located on the immunizations requirements website: vumc.org/student-health/immunization-requirements-new-students. The completed Immunization and Tuberculosis Screening Requirements form must be uploaded to the Student Health Center immunization portal by May 15, 2023. The form also collects important health history information that enables the Student Health Center staff to better serve individual student needs.

Charges

There are no office-visit co-pays for most routine visits, but students will incur small charges for some medications that are dispensed; there are also small co-pays associated with some office procedures or specialty visits (such as colposcopy). Many of the supplies, medications or in-house lab tests are free of charge. If charges are incurred, credit cards and the Commodore Card may be used for payment at the Student Health Center.

Any lab tests not performed at the Student Health Center are sent to the Vanderbilt University Medical Center and are billed to the student's health insurance company by the Medical Center. In addition, when a student is referred to a specialist outside of the Student Health Center, charges incurred are billed by that clinic to the student's health insurance company. Any amount remaining after health insurance has paid its share is the student's responsibility. If a student has an Emergency Department visit after-hours because of a serious illness or injury, the Medical Center will bill the student and his/her/their insurance company.

Sports Medicine specialists from the Medical Center come to Student Health for the convenience of the students, but these visits are not free of charge; the Sports Medicine specialists will bill the insurance on file for the student. The applicable co-pays will be billed by the Vanderbilt University Medical Center (not Student Health) after the visit.

Confidentiality

Care provided at the Student Health Center is confidential in compliance with the Health Insurance Portability & Accountability Act (HIPAA) regulations. It is only with explicit written consent from the student that the Student Health Center may communicate with Deans, parents, professors, or other health care professionals. HIPAA does have a clause that allows notification of families in the event that the student is in an emergency or life-threatening situation.

Vanderbilt University Medical Center personnel will ask treated students in the Emergency Department about notification of staff in Housing and Residential Experience and the Student Health Center. Except in cases of a life- threatening emergency, notification requires the student's permission and is strongly encouraged. This practice enables the University to provide support and assistance to students and their families.

Isolation and Quarantine

Vanderbilt University must enforce public health mandates as required by public health authorities, and may also follow Medical Center and Student Health Center recommendations when the University determines them to be in the best interest of the Vanderbilt community and the public. Based on the aforementioned mandates and/or recommendations, the University may issue directives to students regarding isolation and/or quarantine. As a result, among other needed interventions, students in campus housing, or students traveling as part of Vanderbilt programs or activities, may be required to relocate so that appropriate isolation and/or quarantine can be accomplished. Failure to comply with University directives may result in corrective action through the University's accountability process.

The University Counseling Center

The University Counseling Center (UCC) provides mental health assessment, support, and treatment for students. The UCC promotes social justice and an affirming caring culture through clinical outreach, consultation, and training services. The UCC knows that each student is unique both in terms of their identity and lived experiences, and works with campus partners to provide a comprehensive pathway of support options for students that are flexible and attentive to each individual's particular needs, opportunities, and challenges in a spirit of collaboration and mutual respect.

The diverse team of clinical professionals includes psychologists, licensed counselors including substance use specialists, doctoral interns, practicum students, postdoctoral fellows, and psychiatric medical providers representing a wide variety of backgrounds and identities. Services include short-term individual therapy, a variety of group therapy and workshops options, drop-in consultations, ADHD and learning disabilities evaluations, and psychiatric assessment and treatment.

Students with pressing/acute issues may visit the UCC without an appointment to meet with the Urgent Care Counseling clinician. If there are multiple students seeking Urgent Care Counseling services, the students will be seen on a "first-come, first-served" basis. Flexibility is maintained to address student needs according to level of

acuity. Additionally, students may seek brief support for distressing situations through the UCC's drop-in consultation services as detailed on the UCC's website: vanderbilt.edu/ucc/services/drop-in-consultation/. This program enables students to have rapid access to a counselor for support and guidance. The UCC staff is also available to all VU community for consultations about students of concern and other mental health-related questions.

The UCC is open according to the schedule posted on the center's website: vanderbilt.edu/ucc. Students seeking to schedule a first appointment should visit Student Care Coordination's website at vanderbilt.edu/carecoordination or call 615-343-WELL (9355).

The UCC also focuses on prevention and education programs, often collaborating with the Center for Student Wellbeing to design and deliver programs such as MAPS (Mental Health Awareness & Prevention of Suicide) and ADHD skill-building workshops. These initiatives are designed to foster coping skills and overall resilience and mental health.

More details about services may be found at the UCC website: vanderbilt.edu/ucc.

Charges

The UCC does not charge for services. Students requiring laboratory testing are referred to the Student Health Center. Charges for these tests are made in accordance with Student Health Center policies.

Confidentiality

The UCC is a confidential setting under the Family Educational Rights and Privacy Act (FERPA). To the extent permitted by law, the UCC does not share information about students or anything discussed in session, with the exception of safety concerns, which may override the confidentiality policy. For example, limits of confidentiality include situations that involve imminent risk to a client or another individual, and situations involving elder or child abuse. The UCC encourages students to sign a written release of information form if they would like for the UCC to share information with members of the student's family or others. The UCC may share attendance and additional minimally necessary information with the other primary Student Care Network offices, including Student Care Coordination, Student Health Center, and Center for Student Wellbeing for the purposes of care coordination.

Center for Student Wellbeing

The Center for Student Wellbeing cultivates engagement in lifelong well-being practices and endeavors to create a culture that supports students' personal development and academic success through a holistic and integrative framework. The Center's areas of focus include, for example, alcohol and other drug education and recovery support, self-care and personal growth, strengthening physical and emotional health, developing academic skills and time management, and support for supporting students in distress. The Center provides prevention programming, individual coaching, skill building workshops, substance use screenings, meditation and yoga, and referrals to campus resources.

New appointments for Center for Student Wellbeing services may be scheduled through Student Care Coordination or by contacting the CSW at 615-322-0480 or healthydores@vanderbilt.edu. Information is available at vanderbilt.edu/healthydores/.

Student Health Insurance Plan (SHIP) Eligibility

Degree and non-degree seeking students (excluding Division of Unclassified (DUS) and Consortium students) enrolled in 4+ credit hours, a 0-credit research/dissertation course, or any other course that is considered to equate to full-time enrollment are automatically enrolled in and will be billed for SHIP underwritten by Aetna and administered by Academic HealthPlans (AHP), unless they complete the online waiver process. Information about the plan is available online at vanderbilt.myahpcare.com/. In addition, students may email SHIP@vanderbilt.edu

with questions.

Cost

The annual premium, which is approved each year by the Board of Trust, is billed to students through their student account. The premium is a separate charge from tuition.

Coverage Period

Coverage for students begins August 12 and extends through August 11 the following calendar year. If a student withdraws from school within the first 31 days of a coverage period, they will not be covered under the Policy and the full premium will be refunded, less any claims paid. After 31 days, the student will be covered for the remainder of the Plan year providing plan premiums are paid, and no refund will be allowed. Graduating within 31 days of the start of the coverage period shall not be considered a withdrawal from school.

Questions regarding student health insurance can be sent to SHIP@vanderbilt.edu.

Coverage Benefits

SHIP provides hospital, surgical, and major medical benefits. A brochure explaining the limits, exclusions, and benefits of the plan is available online at vanderbilt.myahpcare.com/ and the Student Care Network website. SHIP requires that the Student Health Center be the student's primary care provider in Nashville, but will provide coverage for referrals to specialists when a referral is made by a Student Health Center. SHIP does not require referrals for behavioral health.

Waiver of Insurance Plan

A student who does not wish to subscribe to SHIP must notify the University of comparable coverage under another policy. Comparable criteria coverage for domestic and international students is found at vanderbilt.edu/studentcarenetwork/waive/.

Waiver of the student insurance plan does not affect eligibility for services at the Student Health Center. The online waiver process may be found online at vanderbilt.myahpcare.com/waiver. The insurance charge will not be waived if the online process is not completed by August 1 for the fall semester, or by January 4 for students who are newly enrolled for the spring semester. **The waiver process must be completed each academic year**. Newly enrolled eligible summer session students planning to take full-time coursework in the fall must complete both a summer waiver form due July 22 and a fall waiver form due August 1. Additional information about the waiver process may be found on the Student Care Network website.

A student who does not wish to subscribe to SHIP must notify the University of comparable coverage under another policy. Comparable criteria coverage for domestic and international students is found at vanderbilt.edu/studentcarenetwork/waive/.

Waiver of the student insurance plan does not affect eligibility for services at the Student Health Center. The online waiver process may be found online at vanderbilt.myahpcare.com/waiver. The insurance charge will not be waived if the online process is not completed by the applicable deadline outlined in the SHIP waiver policies at https://www.vanderbilt.edu/studentcarenetwork/waive. **The waiver process must be completed each academic year**. Newly enrolled eligible summer session students planning to take full-time coursework in the fall must complete both a summer waiver form and a fall waiver form by the applicable deadlines outlined in the SHIP waiver policies. Additional information about the waiver process may be found on the Student Care Network website. Questions regarding waivers can be sent to SHIP@vanderbilt.edu.

Family Coverage

An additional premium is charged for family insurance coverage. An eligible student who wishes to provide coverage for their spouse and/or children, may do so at vanderbilt.myahpcare.com/. It is the student's

responsibility to enroll their dependents each year. Dependents are not automatically enrolled.

Qualifying Events for Students and Dependents

Students who initially waive coverage can request to add coverage if they experience a qualifying event. Examples of a qualifying event include (a) reaching the age limit of another health insurance plan, (b) loss of health insurance through marriage or divorce, (c) involuntary loss of coverage from another health insurance plan, and (d) entering the United States of America. A qualifying event does not include a student who is seeking enrollment to gain access to a benefit that was exhausted under their private insurance plan. Coverage will be effective beginning the first day following the loss of coverage, and the charges will be added to the student's account. Eligible dependents may also be added if the student experiences one of the following qualifying events: (a) marriage, (b) birth of a child, (c) divorce, (d) the dependent entering the country for the first time, or (e) the dependent losing coverage under another insurance plan. Requests to add coverage based on a qualifying event must be received within 31 days of the qualifying event. Forms received more than 31 days after the qualifying event will not be processed.

Student Center for Social Justice and Identity

The Student Center for Social Justice and Identity (SCSJI) within the Dean of Students office conducts events, activities, and training that both celebrate diversity and serve to educate Vanderbilt students on pertinent issues of culture, social justice, identity, and advocacy. SCSJI supports students of varying backgrounds, nationalities, and identities through wide-ranging programming which serves to foster a sense of belonging, to commemorate important cultural values, and to facilitate understanding between people of differing backgrounds and orientations. Additionally, Dean of Students staff members in SCSJI serve a number of student organizations as coaches, meeting with student leaders on a regular basis, attending their organizations' events, and serving as mentors. The center is located in Sarratt 335, across from Vanderbilt's Pub at Overcup Oak. For more information, visit vanderbilt.edu/scsji/.

Student Centers

A variety of facilities, programs, and activities are provided in multiple student center locations or spaces managed by our team. The five primary student centers include Alumni Hall, Commons Center, Kissam Center, Sarratt Student Center | Rand Hall, and the Student Life Center. Additionally, Student Centers manages space within several other buildings throughout campus including Benton Chapel, E. Bronson Ingram College, Rothschild College, Zeppos College, Engineering and Science Building, and spaces within the West End Neighborhood including the Community Event Space, Leadership and Service Space and Multicultural Community Space. Our team is located in Rand 307 and can be contacted at eventservices@vanderbilt.edu or (615) 322-2448.

Sarratt Student Center | Rand Hall is the main student center hub, housing a 300-seat cinema, art gallery, art studios, multicultural lounge, large and small meeting spaces, and a courtyard. The facility is also home to Vanderbilt Student Communications, radio station, TV studio, and the Pub at Overcup Oak restaurant. Rand Hall houses the Rand Dining Center, a multipurpose venue, meeting and seminar rooms, plus large, open lounge space. Some of the offices located in Sarratt Student Center | Rand Hall include Student Affairs, Arts and Campus Events, Greek Life, Student Access, Student Center for Social Justice and Identity, Student Organizations, Leadership and Service, Student Care Coordination and Student Accountability, Community Standards and Academic Integrity. Also included in this facility is a United States Postal Service office and Printing Services.

The Vanderbilt Student Life Center is the university's large event space. It is both the fulfillment of students' vision to have a large social space on campus and a wonderful complement to Sarratt Student Center | Rand Hall. The Student Life Center has more than 18,000 square feet of event and meeting space, including the 9,000-square-foot Commodore Ballroom, which is one of the most popular spaces to have events on campus. The center is also home to the Career Center, Global Safety, and Office of Experiential Learning and Immersion Vanderbilt.

The Commons Center is the community crossroads of The Ingram Commons living and learning community. It has it all: the Dining Hall and great food; a living room with a concert-grade grand piano, and the occasional live musical performance; a small rec room with cardio equipment, free weights, and weight machines; meeting and study rooms; and academic support services like the Writing Studio, the Career Center, and the CASPAR pre-

major advising center. The third floor of The Commons Center is the home of the Department of Political Science.

Alumni Hall was the original student center on campus when the building opened in 1925. Re-opened in fall 2013 after a yearlong renovation that transformed every space in the facility, Alumni Hall has returned to its role as a student center after serving other purposes over the years. In the renovated Alumni Hall, students have access to an exercise room as well as several new meeting and event spaces. The Vanderbilt Graduate School calls Alumni Hall home, and lounge space on the first floor serves as a robust hub for student life within the Graduate School community.

Opened in fall 2014 and fall 2018, respectively, Kissam Center for Warren and Moore College and E. Bronson Ingram College are part of the Vanderbilt residential college system. Kissam Center is home to meeting and event spaces, the Kissam Market, and Kissam Kitchen. E. Bronson Ingram College offers a dining facility, including the award-winning Bamboo Bistro pho concept.

Zeppos College opened in the fall of 2020 and is the fourth residential college and first to open in the West End neighborhood. It features a state-of-the-art dining hall, great room, study lounges, and several other event spaces designed to help foster community among students and residential faculty.

Rothschild College opened in the fall of 2022 and is the fifth residential college and second to open in the West End neighborhood. It features a robust dining hall, great room, study lounges, active learning classroom and a state of the art Black Box Theatre.

Benton Chapel is the largest and main chapel for Vanderbilt University. Dedicated in 1959, the chapel would become the ecumenical home for the various ministries, classes, promotions and special events in the lives of the students, staff, faculty and community here at Vanderbilt. Although decorated in a Christian theme, no one denomination is prevalent making the chapel available to be used by different denominations and traditions through the week.

Engineering and Science Building is a 250,000 square foot structure and home to both the ESB, which includes laboratories, classrooms and a state-of-the-art clean room, and Vanderbilt’s Innovative Pavilion, which includes the Wond’ry and its makerspace.

Opened in fall 2020 as part of the reimagined West End Neighborhood, the Community Event Space is home to many student organization programs, rehearsals and events. The space has two large floors, one with a full-length mirror that allows for the ideal rehearsal space for our performing arts groups. In the Fall 2021 semester, we opened the Multicultural Community Space. This space serves as the hub of activity for many of our multicultural student organizations. And in Fall 2022, we opened the Leadership and Service Space, home to multiple student organization events and programs throughout the year.

Student Governance

Vanderbilt Student Government works in partnership with faculty and administration to represent student interests, concerns, and aspirations. In addition, the organization advocates for students, sponsors organization activities, and coordinates opportunities for student involvement and interaction with faculty. Student interests are addressed through the three branches of the organization: executive, legislative, and judicial. The executive branch includes the Executive Board and Cabinet, as well as ad hoc and standing committees. The legislative branch, known as the Senate, is made up of elected student officials representing the four undergraduate schools and the residential areas. The judicial branch enforces rules set forth in VSG-governing documents. Students are encouraged to become involved with VSG in either appointed or elected positions. To learn more about VSG, their branches, and initiatives, visit their website at studentorg.vanderbilt.edu/vsg.

Student Organizations, Leadership, and Service

Student Organizations, Leadership, and Service's mission is to create, curate, and facilitate co-curricular experiences that provide the Vanderbilt community with opportunities to build a sense of belonging, support lifelong learning, and engage in active citizenship. Students who engage with our office will be catalyst for change impacting the on and off campus community while embracing diversity and inclusion.

The office sponsors signature leadership programs during the year, but also works closely with all areas within the Student Affairs office to ensure leadership programming occurs across all aspects of campus life. Programs emerging from this office will provide students with multiple points of entry and easy access to develop and enhance their leadership skills.

Student Records (Family Educational Rights and Privacy Act)

Vanderbilt University is subject to the provisions of federal law known as the Family Educational Rights and Privacy Act (also referred to as FERPA). This act affords matriculated students certain rights with respect to their educational records. These rights include:

1. The right to inspect and review their education records within 45 days of the day the University receives a request for access. Students should submit to the Office of the University Registrar written requests that identify the record(s) they wish to inspect. The Office of the University Registrar will make arrangements for access and notify the student of the time and place where the records may be inspected. If the Office of the University Registrar does not maintain the records, the student will be directed to the University official to whom the request should be addressed.
2. The right to request the amendment of any part of their education records that a student believes is inaccurate or misleading. Students who wish to request an amendment to their educational record should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the student will be notified of the decision and advised of his or her right to a hearing.
3. The right to consent to disclosures of personally identifiable information contained in the student's education records to third parties, except in situations that FERPA allows disclosure without the student's consent. These exceptions include:
    - Disclosure to school officials with legitimate educational interests. A "school official" is a person employed by the University in an administrative, supervisory, academic or research, or support-staff position (including University law enforcement personnel and health staff); contractors, consultants, and other outside service providers with whom the University has contracted; a member of the Board of Trust; or a student serving on an official University committee, such as the Honor Council, Student Conduct Council, or a grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.
    - Disclosure to parents if the student is a dependent for tax purposes
    - Disclosure to appropriate individuals (e.g., parents/guardians, spouses, housing staff, health care personnel, police, etc.) where disclosure is in connection with a health or safety emergency and knowledge of such information is necessary to protect the health or safety of the student or other individuals.
    - Disclosure to a parent or legal guardian of a student, information regarding the student's violation of any federal, state, or local law, or of any rule or policy of the institution, governing the use or possession of alcohol or a controlled substance if the University has determined that the student has committed a disciplinary violation with respect to the use or possession and the student is under the age of 21 at the time of the disclosure to the parent/guardian.
    - Disclosure to various authorized representatives of government entities (such as, compliance with Student and Exchange Visitors Information System [SEVIS], Solomon Amendment, etc.).

FERPA provides the university the ability to designate certain student information as "directory information." Directory information may be made available to any person without the student's consent unless the student gives notice as provided for, below. Vanderbilt has designated the following as directory information: the student's name, address, telephone number, email address, student ID photos, major field of study, school, classification, participation in officially recognized activities and sports, weights and heights of members of athletic teams, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student, and other information that would not generally be considered harmful or an invasion of privacy if disclosed. Any student who does not wish disclosure of directory information should

notify the Office of the University Registrar in writing. No element of directory information as defined above is released for students who request nondisclosure except as required by statute.

The request for nondisclosure does not apply to class rosters in online class management applications, or to residential rosters—or rosters of groups a student may join voluntarily—in online, co-curricular engagement applications, or rosters of other information on the websites of student organizations that a student may join. Neither class rosters in online class management applications, nor residential rosters in online co-curricular engagement applications, are available to the public.

As of January 3, 2012, the U.S. Department of Education's FERPA regulations expand the circumstances under which students' education records and personally identifiable information (PII) contained in such records—including Social Security Numbers, grades, or other private information—may be accessed without consent. First, the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or state and local education authorities ("Federal and State Authorities") may allow access to student records and PII without consent to any third party designated by a Federal or State Authority to evaluate a federal- or state-supported education program. The evaluation may relate to any program that is "principally engaged in the provision of education," such as early childhood education and job training, as well as any program that is administered by an education agency or institution.

Second, Federal and State Authorities may allow access to education records and PII without consent, to researchers performing certain types of studies, in certain cases even when the University objects to or does not request such research. Federal and State Authorities must obtain certain use-restriction and data security promises from the third parties that they authorize to receive PII, but the Authorities need not maintain direct control over the third parties.

In addition, in connection with Statewide Longitudinal Data Systems, State Authorities may collect, compile, permanently retain, and share without student consent, PII from education records, and may track student participation in education and other programs by linking such PII to other personal information that they obtain from other Federal or State data sources, including workforce development, unemployment insurance, child welfare, juvenile justice, military service, and migrant student records systems.

If a student believes the university has failed to comply with FERPA, he or she may file a complaint using the Student Complaint and Grievance Procedures as outlined in the *Student Handbook.* If dissatisfied with the outcome of this procedure, students may file a written complaint with the Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue SW, Washington, DC 20202-5920.

Questions about the application of the provisions of the Family Educational Rights and Privacy Act should be directed to the Office of the University Registrar or to the Office of General Counsel.

The Commodore Card

The Commodore Card is your official Vanderbilt ID. It is used for identification, for access to residence halls, academic buildings, and campus events, the rec center, libraries and as a debit card for meal plans and other purchases on and off campus. You will receive a digital Commodore Card on your iOS or Android device which you can provision prior to arriving at Vanderbilt, so you are all set the moment you step foot on campus. Plastic cards are no longer issued.

Assistance for your mobile credential is provided at the Commodore Card Office, 184 Sarratt Student Center, Monday through Friday from 8:30 am – 4:00 pm. For more information, please visit vanderbilt.edu/cardservices.

The Ingram Commons and the First-Year Experience

All undergraduates spend their first year at Vanderbilt living on The Martha Rivers Ingram Commons. As part of Vanderbilt's residential college system, The Ingram Commons brings together first-year students, residential faculty, and professional staff in the common pursuit of discovery, creative inquiry, and engaged citizenship. With a focus on bolstering intellect, building community, developing skills for personal well-being, pursuing self-discovery, and developing cultural awareness, all members of The Ingram Commons participate in a mutual exchange of ideas and experiences. The Ingram Commons achieves that goal during the year through its ten houses, the faculty heads of house appointed to mentor students in each of them, and a first-year experience of programs, academic seminars, dinners, discussions, cultural events, social activities, lectures, and guests.

The first-year experience begins with CommonVU Orientation, a required week of activities for all first-year students. It extends from Move-In on Saturday through a first week of orientation and academic classes. During CommonVU Orientation, students begin to experience the new communities of their university—in their houses, across The Ingram Commons and the university campus, and in their classrooms. Activities with each other, peer mentors and other VU upper-division students, faculty heads of house, educational staff, academic advisers, and other Vanderbilt professors introduce life at Vanderbilt.

The first-year experience also includes Vanderbilt Visions, a required first-semester university core program of mentored discussion concerning the expectations, norms, and values required for a successful transition to undergraduate life. Faculty and student VUceptors partner to lead each Vanderbilt Visions small group, whose members come from all ten Ingram Commons houses and each of the four undergraduate schools and colleges.

Groups meet weekly during the fall semester. All first-year students will receive assignments to a Vanderbilt Visions group on their class schedules. More information can be found at commons.vanderbilt.edu.

The Vanderbilt Honor Code and the Honor System

Vanderbilt University takes pride in its honor code and its student-run honor system.

The statement of the honor code is shared by all ten schools of the university:

Vanderbilt University students pursue all academic endeavors with integrity. They conduct themselves honorably, professionally, and respectfully in all realms of their studies in order to promote and secure an atmosphere of dignity and trust. The keystone of our honor system is self-regulation, which requires cooperation and support from each member of the University community.

The Honor System is a time-honored tradition that began with the first classes at Vanderbilt in 1875. Students established the system and continue to manage it today. It rests on the presumption that all work submitted as part of course requirements is produced by the student, without help from any other source unless acknowledgement is given in a manner prescribed by the instructor. Cheating, plagiarizing, or otherwise falsifying results of study are specifically prohibited. The system applies not only to examinations but also to written work and computer programs submitted to instructors. Detailed descriptions of Honor System violations and Undergraduate Honor Council procedures are published in the *Student Handbook,* available on the web at vanderbilt.edu/student_handbook.

Responsibility for the preservation of the system falls on the individual student who, by registration, acknowledges the authority of the Undergraduate Honor Council. Students are expected to demand of themselves and their fellow students complete respect for the Honor Code. Ignorance of the regulations is not a defense for abuse of regulations. All incoming students attend a mandatory signing ceremony and educational program on the Honor System at the beginning of the fall semester. Additional information about the Honor System is available on the web at studentorg.vanderbilt.edu/honorcouncil/.

Transfer Student Orientation

Transfer Student Orientation is Vanderbilt's mandatory orientation program for all transfer students. During this time, new transfer students will learn more about life at Vanderbilt through programs and activities with university staff members, faculty, and upper-division students known as Transfer Student Leaders. Transfer students will receive orientation information via their Vanderbilt email during the summer before arriving at Vanderbilt. Further details can be found at vanderbilt.edu/transfer.

VA Compliance Statement

Any covered individual will be able to attend or participate in the course of education during the period beginning on the date on which the individual provides to the educational institution a certificate of eligibility for entitlement to educational assistance under chapter 31 or 33 (a "certificate of eligibility" can also include a "Statement of Benefits" obtained from the Department of Veterans Affairs' (VA) website – eBenefits, or a VAF 28-1905 form for chapter 31 authorization purposes) and ending on the earlier of the following dates:

1. The date on which payment from VA is made to the institution.
2. 90 days after the date the institution certified tuition and fees following the receipt of the certificate of eligibility.

Vanderbilt University will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other institutional facilities, or the requirement that a covered individual borrow additional funds, on any covered individual because of the individual's inability to meet his or her financial obligations to the institution due to the delayed disbursement funding from VA under chapter 31 or 33.

Vanderbilt Child and Family Center

Vanderbilt Child and Family Center provides support and resources to the community of Vanderbilt families across the spectrum of life. As reflected in our provision of new parent support, early childhood education, family life resources, and elder care support, VCFC values the university's commitment to the education of the whole person and cultivation of lifelong learning. This includes the early childhood care and education program The Acorn School licensed by the State of TN Department of Education for children ages six weeks through six years. This includes a developmental kindergarten program, The Owls.

Visit vanderbilt.edu/child-family-center.

Vanderbilt Student Communications, Inc.

VSC has jurisdiction over the student newspaper, campus radio stations, and other undergraduate student media that are supported by the student service fees. VSC functions chiefly to hire student leaders, supervise and audit financial records, maintain professional standards, and develop communications opportunities for students.

Among the divisions of the corporation are The Vanderbilt Hustler, the campus newspaper; the Commodore yearbook; radio stations WRVU and VandyRadio; Vanderbilt Video Productions; Vanderbilt Recording Studio; The Vanderbilt Review, a literary/arts publication; The Slant, a humor/satire publication; My Commons Life, a website for first-year students; My Vanderbilt Life, a website for all students; Vanderbilt Political Review; Vanderbilt Business Review; Synesis, a Christian perspective publication; Vanderbilt Vanguard, a STEM publication; Vanderbilt Lives, nonfiction essays; The Amp, a music and culture publication; and The Marketing Group.

Vanderbilt University Public Safety

Vanderbilt University Public Safety (VUPS) is a professional law enforcement agency dedicated to the protection and security of Vanderbilt University and its diverse community.

VUPS comes under the charge of the Office of the Vice Chancellor for Administration. As one of Tennessee's larger law enforcement agencies, VUPS provides comprehensive law enforcement and security services to all components of Vanderbilt University including the academic campus, Vanderbilt University Medical Center, Vanderbilt Health at One Hundred Oaks, and a variety of university-owned facilities throughout the Davidson County area.

Public Safety includes a staff of nearly 300 people, organized into three divisions under the Office of the Sr. Associate Vice Chancellor and Chief of Police: Police Department, Emergency Management, and Parking. All of Vanderbilt's commissioned police officers have completed officer training at a state-certified police academy and are required to complete on-the-job training as well as attend annual in-service training. Vanderbilt police officers hold Special Police Commissions and have the same authority as that of a municipal law enforcement officer. The department also employs non-sworn officers called community service officers (commonly referred to as CSOs) providing security and community-oriented services to the Vanderbilt community. For emergency assistance dial (615) 421-1911 (911 from an on-campus extension) or for non-emergency assistance, dial (615) 322-2745 (2-2745 from an on-campus extension).

Vanderbilt University Public Safety provides several services and programs to members of the Vanderbilt community:

VandyRide, Walking Escorts, and ADA Assistance

The VandyRide system provides a nighttime shuttle bus service during the academic year to designated locations on campus. The service consists of vans that operate from 6:00 p.m. to 1:00 a.m. Stop locations are chosen based on location, the accessibility of a secure waiting area, and student input, with signs identifying each stop. GPS technology allows students to track VandyRide on their route via computer or mobile phone using the VandySafe app, setting up text message alerts to let them know when a van will be arriving at their stop. Please visit vanderbilt.apparmor.com/clients/vanderbilt.edu to download the app.

As a supplement to the VandyRide van service, VUPS officers provide walking escorts for students walking to and from any location on campus during nighttime hours. Additionally, an ADA van is accessible to students with mobility impairments. Walking escorts or ADA assistance may be requested by calling either (615) 322-2745 (2-2745 from a campus phone) or (615) 421-8888 (1-8888 from a campus phone). Please visit vanderbilt.edu/movevu/transportation-options for additional information.

Emergency Phones

Emergency telephones (Blue Light Phones) are located throughout the university campus, Medical Center, and One Hundred Oaks.

Each phone has an emergency button that when pressed automatically dials the VUPD Dispatch Center.

An open line on any emergency phone will activate a priority response from a police who will be sent to check on the user of the phone, even if nothing is communicated to the dispatcher. Cooperation is essential to help us maintain the integrity of the emergency phone system. These phones should be used only for actual or perceived emergency situations.

An emergency response can also be activated by dialing 911 from any campus phone. Cell phone users can dial (615) 421-1911 for an emergency response on campus. Cell phone users should dial 911 for off-campus emergencies.

Exchange Area

VUPS has designated two parking spaces at VUPS Headquarters located at 111 28th Avenue South as an "Exchange Area" that is monitored by VUPS Dispatch Center via camera. The Exchange Area is to provide a safe environment for Vanderbilt University students, faculty, and staff to exchange legal items bought and sold online. Either the seller or buyer must be Vanderbilt affiliated (student, faculty, or staff). The affiliated person must complete the online registration form at forms.vanderbilt.edu/view.php?id=811532 prior to the actual exchange.

Security Notices

In compliance with the U.S. Department of Higher Education and the Jeanne Clery Act, Security Notices are issued to provide timely warning information concerning a potentially dangerous situation on or near Vanderbilt University. This information is provided to empower our students and employees with the information available

to make decisions or take appropriate actions concerning their own personal safety. Security Notices are distributed throughout Vanderbilt to make community members aware of significant crimes that occur at the university. They are distributed through Vanderbilt email and the department's webpage, police.vanderbilt.edu/crimeinfo/securitynotices.php.

Educational and Assistance Programs

VUPS offers programs addressing issues such as sexual assault, domestic violence, workplace violence, personal safety, RAD (Rape Aggression Defense) classes, and victim assistance. VUPS provides additional services including property registration (for bikes, laptops, etc.), lost and found, weapons safekeeping, and Submit a Crime Tip. For further information on available programs and services, visit police.vanderbilt.edu/services.

Annual Security and Fire Safety Report

The *Vanderbilt University Annual Security and Fire Safety Report* is published each year to provide you with information on security-related services offered by the university and campus crime statistics in compliance with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act and the Tennessee College and University Security Information Act.

This report is prepared with information provided by the Metropolitan Nashville Police Department and various Vanderbilt University stakeholders such as, Student Athletics, the Dean of Students, Housing and Residential Experience, Title IX, and and Vanderbilt University Public Safety. It summarizes university programs, policies, and procedures designed to enhance personal safety for everyone at Vanderbilt.

A copy of this report may be obtained by written request to Vanderbilt University Public Safety, 2800 Vanderbilt Place, Nashville, Tennessee 37212, or by telephone at (615) 322-2745. A PDF copy of this report may also be obtained on the website at police.vanderbilt.edu/crimeinfo/annual-security-report.pdf.

For information about Vanderbilt University Public Safety, please visit publicsafety.vanderbilt.edu.

Varsity Athletics

Students interested in more highly competitive sports on the varsity level will find challenges in NCAA intercollegiate athletics sanctioned by the Southeastern Conference, the American Athletic Conference, and Conference USA. Women's teams compete in basketball, bowling, cross country, golf, lacrosse, soccer, swimming, tennis, volleyball, and indoor and outdoor track and field. Men's teams compete in baseball, basketball, cross country, football, golf, and tennis. Women's lacrosse is in the American Athletic Conference. Women's bowling is in the Southland Conference. All other sports are in the Southeastern Conference.

Vanderbilt University

Accreditation

Vanderbilt University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, masters, and doctorate degrees. Vanderbilt University also may offer credentials such as certificates and diplomas at approved degree levels. Questions about the accreditation of Vanderbilt University may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website (www.sacscoc.org).

Commencement

The university holds its annual Commencement ceremony following the spring semester. Degree candidates must have completed successfully all curriculum requirements and have passed all prescribed examinations by the published deadlines to be allowed to participate in the ceremony. A student completing degree requirements in the summer or fall semester will be invited to participate in Commencement the following May; however, the semester in which the degree was actually earned will be the one recorded on the diploma and the student's permanent record. Financially clear students unable to participate in the graduation ceremony will receive their

diplomas by mail.

Please refer to the Commencement webpage at vanderbilt.edu/commencement for complete information on the May ceremony.

Equity, Diversity, and Inclusion

Excellence at Vanderbilt is inextricably tied to the university's commitment to fostering an inclusive community where people of all identities, backgrounds, and perspectives can thrive. The Associate Dean of Students for Equity, Diversity and Inclusion, the Senior Director of Faculty Advancement, Diversity and Belonging and the Vice Chancellor for People, Culture and Belonging work in partnership with students, faculty, and staff to identify and implement best practices that advance equity, diversity, and inclusion across campus in pursuit of building and supporting an inclusive community enriched by a broad variety of experiences and knowledge.

Information Technology

Vanderbilt University Information Technology (VUIT) is a human-centric organization that advances our University by delivering innovative solutions and frictionless experiences through collaboration. As the central technology provider, we offer students a wide variety of services, including campus network connectivity, email, help desk support, authentication, and application support.

Connecting at VU

VUIT manages the campus-wide data network that provides Wi-Fi access to the internet, as well as VU Identity, the authentication service that enables the Vanderbilt community to securely identify themselves to access university resources.

Those university resources include YES (Your Enrollment Services), and Brightspace (learning management system). In addition to your username and password, many services require multi-factor authentication using the DUO app. VUIT also provides VPN access for secure connections to Vanderbilt resources away from campus.

Creating and Collaborating at VU

Through VUIT, Vanderbilt offers all students low-cost and free software, including Microsoft Office. See softwarestore.vanderbilt.edu for a complete product catalog and more information.

VUIT prioritizes collaboration and finding the right tool to suit your needs. That's why we offer several collaboration services to our students, free of charge. All students have access to Office 365, Microsoft's core set of productivity and collaboration software, including Microsoft Teams. Teams offers an integrated experience to enable teamwork, with capabilities for file sharing, live editing, ongoing chat, as well as video meetings and calls.

All VU community members get a Zoom account with no meeting length restrictions – and the ability to host up to 300 participants.

Getting Tech Support at VU

The Tech Hub assists students, faculty, and staff with many VUIT services, including Wi-Fi access. To best meet your needs, VUIT provides support three ways: 1) remotely, 2) in-person by appointment, and 3) walk-up at the Hill Center, Monday through Friday from 8:30am - 4:30pm.

For more information or to request help, visit it.vanderbilt.edu.

Mission, Goals, and Values

Vanderbilt University is a center for scholarly research, informed and creative teaching, and service to the community and society at large.

Vanderbilt will uphold the highest standards and be a leader in the quest for new knowledge through scholarship, dissemination of knowledge through teaching and outreach, and creative experimentation of ideas and concepts.

In pursuit of these goals, Vanderbilt values most highly intellectual freedom that supports open inquiry, equality, compassion, and excellence in all endeavors.

Modification Policy and Nondiscrimination Statement

The university reserves the right, through its established procedures, to modify the requirements for admission and graduation and to change other rules, regulations, and provisions, including those stated in this bulletin and other publications, and to refuse admission to any student, or to require the withdrawal of a student if it is determined to be in the interest of the student or the university. All students, full time or part time, who are enrolled in Vanderbilt courses are subject to the same policies.

Policies concerning noncurricular matters and concerning withdrawal for medical or emotional reasons can be found in the Student Handbook, which is on the Vanderbilt website at vanderbilt.edu/student_handbook.

NONDISCRIMINATION STATEMENT

In compliance with federal law, including the provisions of Title VI and Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendment of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, the ADA Amendments Act of 2008, Executive Order 11246, the Vietnam Era Veterans Readjustment Assistance Act of 1974 as amended by the Jobs for Veterans Act, and the Uniformed Services Employment and Reemployment Rights Act, as amended, and the Genetic Information Nondiscrimination Act of 2008, Vanderbilt University does not discriminate against individuals on the basis of their race, sex, sexual orientation, gender identity, religion, color, national or ethnic origin, age, disability, military service, covered veterans status, or genetic information in its administration of educational policies, programs, or activities; admissions policies; scholarship and loan programs; athletic or other university-administered programs; or employment. In addition, the university does not discriminate against individuals on the basis of their gender expression. Requests for information, inquiries or complaints should be directed to these offices: Equal Opportunity and Access Office, eoa@vanderbilt.edu, telephone (615) 343-9336; Title IX Office, Title IX Coordinator, titleix@vanderbilt.edu, telephone (615) 343-9004, 110 21st Avenue South, Suite 975, Nashville TN 37203; Student Access Office, studentaccess@vanderbilt.edu, telephone (615) 343-9727.

Obtaining Information about the University

Notice to current and prospective students:

In compliance with applicable state and federal law, the following information about Vanderbilt University is available:

Institutional information about Vanderbilt University, including accreditation, academic programs, faculty, tuition, and other costs, is available in the catalogs of the colleges and schools on the Vanderbilt University website at vanderbilt.edu/catalogs.

Information about financial aid for students at Vanderbilt University, including federal and other forms of financial aid for students, is available from the Office of Student Financial Aid and Scholarships on the Vanderbilt University website at vanderbilt.edu/financialaid. The Office of Student Financial Aid and Scholarships is located at 2309 West End Avenue, Nashville, Tennessee 37240-7810, (615) 322-3591 or (800) 288-0204.

Information about graduation rates for students at Vanderbilt University is available on the Vanderbilt University website at vanderbilt.edu/pie/student/. Paper copies of information about graduation rates may be obtained by writing the Office of the University Registrar, Vanderbilt University, PMB 407701, 110 21st Avenue South, Suite 110, Nashville, Tennessee 37240-7701 or by calling (615) 322-7701.

The Vanderbilt University Annual Security Report on university-wide security and safety, including related policies, procedures, and crime statistics, is available from the Vanderbilt University Police Department on the university website at police.vanderbilt.edu/pdfs/annual-security-report.pdf. A paper copy of the report may be obtained by writing the Vanderbilt University Police Department, 2800 Vanderbilt Place, Nashville, Tennessee 37212, or by calling (615) 343-9750. For more information, see the “Vanderbilt University Police Department” section of this catalog.

A copy of the annual Equity in Athletics Disclosure Act Report on the Vanderbilt University athletic program participation rates and financial support data may be obtained by writing the Vanderbilt University Office of Athletic Compliance, 2601 Jess Neely Drive, P.O. Box 120158, Nashville, Tennessee 37212 or by calling (615) 322-7992.

Information about your rights with respect to the privacy of your educational records under the Family Educational Rights and Privacy Act is available from the Office of the University Registrar on the Vanderbilt University website at registrar.vanderbilt.edu/ferpa. Paper copies of this information about educational records may be obtained by writing the Office of the University Registrar, Vanderbilt University, PMB 407701, 110 21st Avenue South, Suite 110, Nashville, Tennessee 37240-7701, or by calling (615) 322-7701. For more information, see the “Student Records (Family Educational Rights and Privacy Act” section of this catalog.

The Jean and Alexander Heard Libraries

The Jean and Alexander Heard Libraries system at Vanderbilt University houses nearly five million items and provides access to millions more resources through its nine campus libraries: Central Library (A&S); Peabody Library; Annette and Irwin Eskind Family Biomedical Library and Learning Center; Walker Management Library; Wilson Music Library; Massey Law Library; Stevenson Science and Engineering Library; the Divinity Library; and the Special Collections Library. These libraries share an online presence that provides access to an integrated catalog of print and e-resources, as well as information about library services, workshops, programs, exhibitions, research guides, and librarian subject specialists.

Library staff teach students to be information literate and help them develop research skills in an increasingly complex information environment. Students can connect with a librarian in person or ask questions through the library website. Library spaces across campus offer quiet individual study spaces, group study, and instructional rooms, as well as learning commons and cafes. Faculty- and student-curated exhibitions throughout the libraries offer intellectual and creative insights that encourage students to think critically and see their own work in new ways. Students, faculty, and staff come to the library to read in a cozy nook, meet friends for group study, grab a quick meal, or attend an author’s talk. Even if you are off campus, digital library resources are at your fingertips via your phone, laptop, or computer.

The oldest items in the library date from ca. 2500 BCE, and new publications are being added every day. Among the collection strengths are: Latin American history, politics, and culture; the History of Medicine Collections; the W. T. Bandy Center for Baudelaire and Modern French Studies; the Southern Literature and Culture Collections; the United States Playing Card Collection; and the Vanderbilt Television News Archive, the world’s most extensive archive of television news covering 1968 to present. The libraries are also involved in digital scholarship, publishing and partnering with faculty on the *Revised Common Lectionary,* one of the first published

web-based resources of scriptural readings for the liturgical year, *Ecclesiastical and Secular Sources for Slave Societies,* a digital preservation program for endangered documents related to slave societies, the *Global Music Archive,* a multimedia archive for traditional and popular song, music, and dance of Africa and the Americas, and *Syriaca,* a digital project for the study of Syriac literature, culture, and history.

Get to know your libraries and your librarians early in your career at Vanderbilt. They have the information you need—and can help you transform that information into knowledge, creativity, and success.

The University

Commodore Cornelius Vanderbilt, who gave a million dollars to build and endow Vanderbilt University in 1873, expressed the wish that it "contribute . . . to strengthening the ties which should exist between all geographical sections of our common country."

A little more than a hundred years later, the Vanderbilt Board of Trust adopted the following mission statement: "We reaffirm our belief in the unique and special contributions that Vanderbilt can make toward meeting the nation's requirements for scholarly teaching, training, investigation, and service, and we reaffirm our conviction that to fulfill its inherited responsibilities, Vanderbilt must relentlessly pursue a lasting future and seek highest quality in its educational undertakings."

Today as Vanderbilt pursues its mission, the university more than fulfills the Commodore's hope. It is one of a few independent universities with both a quality undergraduate program and a full range of graduate and professional programs. It has a strong faculty of more than 4,200 full-time members and a diverse student body of more than 12,800.

The 334-acre campus is about one and one-half miles from the downtown business district of the city of Nashville, combining the advantages of an urban location with a peaceful, parklike setting of broad lawns, shaded paths, and quiet plazas.

The schools of the university offer the following degrees:

College of Arts and Science. Bachelor of Arts.

Blair School of Music. Bachelor of Music, Bachelor of Musical Arts.

Divinity School. Master of Divinity, Master of Theological Studies, Master of Theology, Doctor of Ministry.

School of Engineering. Bachelor of Engineering, Bachelor of Science, Master of Engineering.

Graduate School. Master of Arts, Master of Fine Arts, Master of Liberal Arts and Science, Master of Science, Doctor of Philosophy.

Law School. Master of Laws, Master of Legal Studies, Doctor of Jurisprudence.

School of Medicine. Master of Education of the Deaf, Master of Genetic Counseling, Master of Imaging Science, Master of Public Health, Master of Science in Clinical Investigation, Master of Science in Medical Physics, Master of Science (Applied Clinical Informatics, Speech-Language Pathology), Doctor of Audiology, Doctor of Medical Physics, Doctor of Medicine.

School of Nursing. Master of Nursing, Master of Science in Nursing, Doctor of Nursing Practice.

Owen Graduate School of Management. Master of Accountancy, Master of Business Administration, Master of Management in Health Care, Master of Marketing, Master of Science in Finance.

Peabody College. Bachelor of Science, Master of Education, Master of Public Policy, Doctor of Education.

No honorary degrees are conferred.

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Courses by Subject Areas

A&S College Core

CORE1010 - Being Human
Course Description

This course invites you to launch your undergraduate career with some of the biggest questions humans have asked: Who are we, and why are we here? To begin, we will ask: why are we here at Vanderbilt, and what is the purpose of a college education? We will then examine the varied ways that people in different times, places, and circumstances have contemplated the meaning of humanity-raising questions about social flourishing and responsibility; about solidarity, hierarchy, and difference; and about the very boundaries of "the human." Offered on a graded basis only. [3] (HCA)

African American Diaspora Studies

AADS1001 - Commons iSeminar
Course Description

Topics vary. Open only to first-year students. General Elective credit only. [1] (No AXLE Credit)

AADS1010 - Introduction to African American and Diaspora Studies
Course Description

Foundations of African American culture from ancient African history and through contemporary issues in the African American experience and the larger diaspora. The characteristics, developments, and dynamics of diaspora culture in the Americas, with a particular focus on the United States. [3] (P)

AADS1016 - Race Matters
Course Description

Race and racism in the United States and their impact on democratic practices. General intellectual and cultural manifestations of the significance of race and how it influences democratic reform: racial preferences, the prison industrial complex, national security, HIV/AIDS, and elections. [3] (US)

AADS1108 - Making of the African Diaspora
Course Description

1790 to the mid-twentieth century. Slave politics and abolition, the meaning of freedom after emancipation, and black workers' struggle for democracy and citizenship. Resistance to empire and colonialism. Migration, race and color ideology, religion, and culture. [3] (P)

AADS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

AADS1204 - Diaspora Feminisms
Course Description

Introduction to feminism in multiple diasporic places and communities. Comparison of black feminisms across time and space. [3] (INT)

AADS1404 - Comparative Black Male Writers
Course Description

Diasporic black male fiction and poetry writers. Themes of sexuality and sexual identity, exile, home, violence, color, and class. [3] (HCA)

AADS1506 - Reel to Real: Film Aesthetics and Representation
Course Description

Oppositional cinematic practices of black filmmakers. Hollywood representations of blacks. The theoretical language of film criticism, styles, genres, periods. [3] (P)

AADS1706 - Capoeira: Afro-Brazilian Race, Culture, and Expression
Course Description

Origins of an Afro-Brazilian martial art form. Influence on Brazilian and world culture in the areas of religion, dance, and music. Development as a social protest movement. Intersections of race, gender, class, power, and national identity. [3] (INT)

AADS1716 - The African City: Urban Landscapes on the Page, Screen, and Canvas
Course Description

Study of African cities north and south of the Sahara through literature, visual and popular cultures, and history. Impact of colonial and postcolonial practices and policies on urban landscapes, urban relationships, and resources. Gendered experiences of the city in fiction, non-fiction, music, art, and film. [3] INT

AADS1808 - On Whiteness: Whiteness Studies, Race, and Identity
Course Description

Key texts and thinkers on whiteness and white identity. Whiteness as a historical construct. Unpacking the phrase "white privilege." [3] (US)

AADS1906 - Curating Black Lives: Imagination, Art, and Global Social Change
Course Description

Visual arts, social change, and black social movements. Aesthetics, value, and social impact of art and social change efforts. Role of the arts in shaping collective black identity and historical memory of national and global social movements. [3] (INT)

AADS2104 - Popular Culture and Black Sexual Politics
Course Description

Constructed images of black masculinity, femininity, and sexuality in popular culture. Social political hierarchies in society at-large. [3] (HCA)

AADS2106 - African Diaspora: A Problem for Thought
Course Description

Beginning with the slave trade in Europe to the formation of slave colonies in the Americas. Meaning of diaspora for African subjects in the 18th-19th centuries, and challenges to racism and colonialism in the African Diaspora in the 20th century. [3] (P)

AADS2148 - Blacks in Latin America and the Caribbean
Course Description

Distinctive cultural forms and patterns in the Caribbean basin and Latin America from the sixteenth century to the present. Diverse origins of culture. Slave society's impact on cultural production. [3] (INT)

AADS2166 - African American Influences on Country Music
Course Description

African and African American aesthetics, instruments, and people. Southern rural folk music in the United States. [3] (US)

AADS2168 - Black Migrations in the African Diaspora
Course Description

The impact of migration in a post-civil rights and post-colonial world. Political tensions, identity politics, and solidarity. Comparative anthropological and sociological narratives on race, culture, and ethnicity. Countries and regions include Democratic Republic of Congo, France, Ghana, Liberia, Tanzania, parts of Asia, and the U.S. [3] (INT)

AADS2178 - Global Africa
Course Description

The globalization of Africa within the context of Arab and European expansion. Historical flashpoints and contemporary events. The invention of Africa in literary and political discourses. The geopolitics of aid and development. Africa's relationship with the African diaspora, including modern migrations and debates on the racial and geographic divide between Arab regions north and south of the Sahara. [3] (INT)

AADS2204 - Black Women and the Politics of Blackness and Beauty
Course Description

Competing and contested meanings of beauty and race in the post-black society. The role of traditional and new media in self-expressions and self-understandings of color, body image, hair, and relationships. [3] (HCA)

AADS2214 - History and Myth: Black Women in the United States
Course Description

Complexities of being black and female in the history of the United States. Interrogation of racism, class, sexuality, and sexism. Black women's multifaceted, diverse community roles. [3] (HCA)

AADS2294 - Black Paris - Paris Noir: The African Diaspora and the City of Light
Course Description

The lived experiences, tensions, belonging, and representations of people of African descent who self-identify and are identified as Black or Noir in Paris, France, from the interwar years to the present. Diversity, intergroup relations, and race beyond the United States. Not open to students who have earned credit for AADS 1111 Section 05 without permission. Total credit for this course and AADS 1111 Section 05 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (INT)

AADS2294W - Black Paris
Course Description

Experiences, tensions, belonging, and representations of people of African descent who self-identify and are identified as Black or Noir in Paris, France; from the interwar years to the present. Diversity and intergroup relations. Not open to students who have earned credit for AADS 1111 Section 05. [3] (INT)

AADS2306 - Race, Mixed Race, and "Passing."
Course Description

Social, legal constructions and live experiences of race. Phenomenon of "passing" and category of "mixed race" in fiction, film, and land-mark court cases. [3] (HCA)

AADS2308 - Critical Race Theory: Race, Racism and Narratives in Education
Course Description

Foundations, methodologies, and policy-analysis methods of Critical Race Theory as tool of educational practices and policies. [3] (SBS)

AADS2356 - African Spirits in Exile: Diaspora Religions in the Americas
Course Description

Use of anthropology, folklore, history, and literature to examine the history of Haitian Vodun, Cuban Santeria, Brazilian Candomblâ©, New Orleans Voodoo, and Trinidadian Orisha worship. Comparisons with Black Christian traditions and supernatural beliefs beyond organized religion. [3] (P)

AADS2514 - Insider/Outsider: Lesbian, Gay, Bisexual, and Trans Black Histories
Course Description

History, culture and politics of Black lesbian, gay, bisexual, transgender, and queer (LGBTQ) communities during the 20th and 21st centuries. [3] (P)

AADS2654 - Memoirs and Biographies
Course Description

Biographies and autobiographies as lenses for the study of historical trends and events; development of gender, sexual, and racial identities in subjects. [3] (US)

AADS3004 - The Morrisonian Era: Toni Morrison and American Social Reality
Course Description

Fiction, anthologies, and essays of Toni Morrison. Intersections of race, gender, and class as touchstones in American social reality and Morrison's body of ideas and subsequent works. [3] (HCA)

AADS3006 - James Baldwin: Five Ways of Looking at His Life
Course Description

The author through literature, art, film, politics, and place. Five places critical in his artistic evolution: Harlem and Greenwich Village, New York; Paris and St. Paul-de-Vence, France; and Turkey. Film recreations of his life and writings. [3] (INT)

AADS3016 - GOAT: Life, Times, and Politics of Muhammad Ali
Course Description

"The Greatest Of All Time" (GOAT)--Muhammad Ali--and his impact on U.S. sports history, U.S. political culture, global black freedom struggles, and engagement with the Nation of Islam. Offered on a graded basis only. [3] (US)

AADS3104W - Soul Food as Text in Text: An Examination of African American Foodways
Course Description

Distinctions between Southern food and soul food. Soul food as performance and projection of gender and racial identity. Cookbooks as literary artifacts. Soul food in American popular culture, and in African American, Southern, and women's writing. Soul food and community formation. [3] (HCA)

AADS3178 - Colonialism and Its Afterlives
Course Description

African and Caribbean cultures of colonialism. Forms of decolonization and the predicament of neocolonialism from the emergence of capitalism to the present. The historical and anthropological projects of empire and race-making. Causes and strategies of expansion. Forms of representation and knowledge production. Discourses around intimacy, illness and hygiene. Practices of coercion and violence. [3] (INT)

AADS3204W - African American Children's Literature
Course Description

From the seventeenth century to the present. Oral and written; fiction and non-fiction. Major works, writers, and genres. [3] (HCA)

AADS3206 - Mystery, Murder, and Mayhem in Black Detective Fiction
Course Description

Detective fiction in America, beginning with Edgar Allan Poe, the founder of the genre in the American literary tradition, and continuing on with such black writers as Chester Himes, Walter Mosley, Paula Wood, and Pamela Thomas-Graham. [3] (HCA)

AADS3208W - Blacks in the Military
Course Description

Black participation in American and other wars, from the Revolutionary and Civil wars to ongoing global conflicts. Issues of democracy and freedom. Thematic explorations through film. [3] (P)

AADS3214 - Black Masculinity: Social Imagery and Public Policy
Course Description

Historical and contemporary debates, perceptions, and attitudes. Public policy debates surrounding disparate incarceration rates and sentencing, policing, racial profiling. Social imagery, "down low" homosexuality, criminality, hypersexuality, and athleticism. [3] (SBS)

AADS3248 - Atlantic African Slave Trade
Course Description

Cultural, economic, and social aspects of the African slave trade into the Americas from the 16th to 19th centuries. Transformation of the slave trade as a result of abolition and suppression. [3] (SBS)

AADS3258 - Black Issues in Education
Course Description

Race, ethnicity, gender, class and their relationships to both the broader roles of schooling and education in American society. Historical foundation of education for African Americans, educational and socioeconomic inequality, family structures, and social policy initiatives. [3] (SBS)

AADS3278 - Black Europe
Course Description

History and politics of the African Diaspora in Europe. Focus on Britain, France, Germany, the Netherlands, and Scandinavia. European Union debates about social exclusion; race in the European context. [3] (INT)

AADS3278W - Black Europe
Course Description

History and politics of African Diaspora in Britain, France, Germany, the Netherlands, and Scandinavia. European Union debates about social exclusion and race. [3] (INT)

AADS3306 - Black Detroit
Course Description

From 1800 to present. Theory and practice of the Black Metropolis focusing on Detroit, Michigan, as a location of African-American community, commerce, and creativity. [3] (HCA)

AADS3336 - Literatures of Protest
Course Description

Study of Black protest through various literary and performative genres, novels, opinion-editorials, poetry, sermons, songs, from 18th century onwards. Exploration of the Black Jeremiad tradition in sermons and texts. [3] (HCA)

AADS3556 - The Political Economy of Racism: Erasures, Slavery, Eviction, and Fables of Whiteness
Course Description

Decoding racism in US legislation, novels, historical and political texts, sociological studies, and films. [3] (US)

AADS3611 - Jazz Acting
Course Description

Actor training with an emphasis on Afrocentric methods such as improvisation and ensemble performance. Offered on a graded basis only. Prerequisite: THTR 1611. [3] (HCA)

AADS3850 - Independent Study
Course Description

May be repeated for a total of 6 credits, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of AADS 3850] (No AXLE credit)

AADS3880 - Internship Training
Course Description

Graded on a Pass/Fail basis only and must be taken concurrently with 3881. These hours may not be included in the minimum number of hours required for the African American and Diaspora studies major. Under faculty supervision, students from any discipline can gain experience in a broad range of public and private institutions on issues relative to the black experience. A minimum of 3 hours of background reading and research will be completed in AADS 3881 concurrently with and regardless of the numbers of hours taken in internship training in 3880. Normally a 2.90 grade point average, 6 hours of prior work in AADS, and prior approval by the director of Undergraduate Studies in African American and Diaspora Studies of the student's plan are required. A research paper and report must be submitted at the end of the semester during which the internship training is completed. Corequisite: 3881. [Variable credit: 1-9] (No AXLE credit)

AADS3881 - Internship Readings and Research
Course Description

Readings conducted under the supervision of a member of the African American and Diaspora Studies program and a substantial research paper are required. Under faculty supervision, students from any discipline can gain experience in a broad range of public and private institutions on issues relative to the black experience. A minimum of 3 hours of background reading and research will be completed in AADS 3881 concurrently with and regardless of the numbers of hours taken in internship training in 3880. Normally a 2.90 grade point average, 6 hours of prior work in AADS, and prior approval by the director of Undergraduate Studies in African American and Diaspora Studies of the student's plan are required. A research paper and report must be submitted at the end of the semester during which the internship training is completed. Corequisite: 3880. [Variable credit: 3-6] (No AXLE credit)

AADS3890 - Special Topics
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

AADS4104 - Environmental History, Sustainability, and African American Foodways
Course Description

Advanced treatment of African-American foodways. African-American environmental history. Effects of Seventh-Day Adventist and Black Muslim religious practices on African-American foodways. Creative writing of poet Kevin Young. [3] (HCA)

AADS4108 - Medical Apartheid: Race, Gender and Health
Course Description

Slavery and the evolution of the fields of gynecology and obstetrics; enslaved black women's agency. Disparities in maternal health and maternal mortality rates, social determinants of health, structural racism, and risk factors. Scientific racism, consent, and implicit bias. [3] (SBS)

AADS4126 - The Black Classics
Course Description

Key texts and writers of the African Diaspora, from medieval Africa to the present. Fiction and non-fiction across the disciplines of anthropology, education, history, law, literature, politics, religion, and sociology. [3] (HCA)

AADS4198 - Global Anti-Blackness and Black Power
Course Description

The relationship and relevance of Black Power to anti-blackness in the United States and globally. The systemic marginalization and exclusion of blacks in public life. Their resilience against and resistance to those efforts. [3] (INT)

AADS4228W - Black Girlhood: History, Performance and Counter-Narratives
Course Description

Historical and current social, political, and cultural constructions of black girlhood in the United States. Performances in which black girls engage to deconstruct and interrupt these constructions via scholarly works, poetry, film, photography, and novels. [3] (SBS)

AADS4256 - Haiti: Freedom and Democracy
Course Description

The Saint-Domingue Revolution from 1791 to 1803 and the development of Haiti from 1804 to the present. Haiti in global context; the revolution as a key moment in the Age of Revolution and the formation of the Black International. Historical monographs, novels, poetry, visual culture, and music. [3] (INT)

AADS4264 - Black Diaspora Women Writers
Course Description

Comparative fiction by women from Francophone and Anglophone Africa , the Caribbean, and the United States. Novels of awakening (bildungsroman), themes of exile, home and alienation, identity as well as sexuality, class and color, slavery and colonialism. [3] (HCA)

AADS4270 - Research Methods
Course Description

Collection, management, analysis and interpretation of data for research. Introduction to qualitative computer software programs. [3] (SBS)

AADS4506 - Slavery and Public Memory
Course Description

Systems of African enslavement in the Americas as a subject of debate among popular and academic audiences. Memoirs, oral history, genealogy, literature, film, and other creative production. Public commemoration and tourist-related slavery observances around the diaspora. [3] (SBS)

AADS4588 - The Black Studies Movement
Course Description

(Offered as 4580 prior to Fall 20200 Black Studies and student movements of the 1960s and early 1970s. Intellectual traditions, precedents, and political ideologies of movements. Issues that sparked the call for Black Studies at different college campuses and public school systems. Not open to students who have completed 4580. [3] (SBS)

AADS4851 - Special Topics in Humanities
Course Description

Topics Vary. Literary, philosophical, and cultural texts. May be repeated for credit if there is no duplication in topic. [3] (HCA)

AADS4852 - Special Topics in Social Sciences
Course Description

Topics Vary. Diverse range of social and political questions, issues, and problems. May be repeated for credit if there is no duplication in topic. [3] (SBS)

AADS4979 - Senior Thesis in African American and Diaspora Studies
Course Description

Senior Thesis in African American and Diaspora Studies. Supervised readings and independent research to produce an interdisciplinary research paper; topic to be selected in conjunction with a faculty member of African American and Diaspora Studies. Open only to seniors. [3] (No AXLE credit)

AADS4999 - Senior Honors Thesis
Course Description

Supervised readings and independent research for honors thesis under supervision of the adviser and another faculty member. Open only to seniors in the Honors Program. [3] (No AXLE credit)

American Sign Language

ASL2100 - American Sign Language I
Course Description

This introductory course includes basic communication skills of American Sign Language and "contact" language (e.g., nonmanual markers, fingerspelling, numbers, basic vocabulary, classifiers), the sign system continuum, culture implications, and media resources available. [3]

ASL2110 - American Sign Language II
Course Description

This is an intermediate course in American Sign Language that includes an in-depth look at the linguistics of ASL (e.g., morphology, syntax, phonology, and semantics) and current readings and research in the field. [3]

American Studies

AMER1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE Credit)

AMER1002 - Introduction to American Studies
Course Description

An interdisciplinary approach to American culture, character, and life. Repeat credit for students who have completed 1002W. [3] (US)

AMER1002W - Introduction to American Studies
Course Description

An interdisciplinary approach to American culture, character, and life. Repeat credit for students who have completed 1002. [3] (US)

AMER1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

AMER1200 - Introduction to Southern Studies
Course Description

An interdisciplinary approach to southern American culture, character, and life approached from the interrelated perspectives of history and culture (literature, music, religion, images, rituals, material culture). [3] (US)

AMER1700W - Writing for Social Change
Course Description

Practice of narrative, nonfiction writing for social change. History of American investigative journalism and scholarship. Interviewing, research, narrative and revision skills. [3] (HCA)

AMER1750W - Prison Writing in the US
Course Description

On-campus course on prison writings. Centered on voices of incarcerated people in lockdown in the Secure Housing Unit. Daily living and struggles of incarceration. [3] (US)

AMER2100 - Sports, Culture, and Society
Course Description

Multifaceted role of sports in culture and society, past and present. Cross-cultural perspectives on U.S. sports and related practices. [3] (SBS)

AMER2204 - The U.S. Stage
Course Description

Including British colonial and revolutionary drama; frontier theatre; melodrama; minstrelsy, vaudeville, burlesque, and the musical stage; pageantry and community theatre; postwar realism; African-American, Chicana/o, feminist, and Asian-American theatre movements. [3] (US)

AMER2500 - American Cultures: Past, Present, Future
Course Description

American cultural history from earliest contact between North American indigenous peoples and Europeans to the present. Popular norms and beliefs as well as literature, art, and philosophy. Ideas of exceptionalism, democracy, and the marketplace; struggles over inclusion and citizenship; and the U.S. role in globalization. [3] (US)

AMER3007 - Religion Culture and Society
Course Description

Relationships between cultural, political, and social dynamics and religion. How religions and spiritual practices shape cultures and are changed by them. Contexts and issues that arise from the religious and spiritual dimensions of human life. [3] (HCA)

AMER3100 - Rhetoric of Social Movements
Course Description

The role of communication in the creation, development, and function of social movements. The analysis of specific rhetorical acts. The study of the arguments, patterns of persuasion, and communication strategies of selected social movements. [3] (US)

AMER3200 - Global Perspectives on the U.S.
Course Description

Contemporary and historical views of the U.S. political and cultural presence in the world; comparative nationalisms; emphasis on points of view outside the U.S. [3] (US)

AMER3333 - Going Viral? Borders, Belonging, and Citizenship in the Contemporary World
Course Description

Today's most intractable problems traverse national boundaries. Yet crises like COVID-19, global warming, and poverty also energize attempts to police borders, curtail migration, and tighten citizenship requirements. In this interdisciplinary course with guest appearances by activists, artists, and authors, we explore pressures on contemporary ideas about membership, boundaries, and belonging. [3] (HCA)

AMER3830 - Serving and Learning
Course Description

Meanings of and motives behind community service in the United States. The process of engagement in meaningful service. Challenges in integrating service with academic coursework. A service-learning course. [3] (P)

AMER3851 - Independent Readings and Research
Course Description

Independent readings and/or research on approved topics relating to American society and culture. May be repeated for a total of 6 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of AMER 3851 and 3852] (No AXLE credit)

AMER3852 - Independent Readings and Research
Course Description

Independent readings and/or research on approved topics relating to American society and culture. May be repeated for a total of 6 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of AMER 3851 and 3852] (No AXLE credit)

AMER3880 - Internship Training
Course Description

Offered on a pass/fail basis only and must be taken concurrently with 3881. Under faculty supervision, students intern in public or private organizations, conduct background research and reading, and submit a research paper at the end of the semester during which the internship training is complete. Background reading and research will be completed in 3881 concurrently with the completion of internship training, 3880; a minimum of 3 hours of 3881 must be completed, independent of hours taken in 3880. Corequisite: 3881. [Variable credit: 1-6] (No AXLE credit)

AMER3881 - Internship Readings and Research
Course Description

Under faculty supervision, students intern in public or private organizations, conduct background research and reading, and submit a research paper at the end of the semester during which the internship training is completed. Background reading and research will be completed in 3881 concurrently with the completion of internship training, 3880; a minimum of 3 hours of 3881 must be completed, independent of hours taken in 3880. Corequisite: 3880. [3-6]. (No AXLE credit)

AMER3890 - Topics in American Studies
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (SBS)

AMER4000 - Research Methods Workshop
Course Description

Issues, methodologies, traditions, approaches, and problems in the discipline. Limited to juniors and seniors with preference given to majors and minors. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

AMER4100 - Undergraduate Seminar in American Studies
Course Description

Advanced reading, research, and writing in a particular area of American Studies. Limited to juniors and seniors with preference given to American Studies majors. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3; maximum of 6 credits total for all semesters of AMER 4100] (SBS)

AMER4960 - Senior Project
Course Description

A project conceived, developed, and completed under supervision of the American Studies faculty. Normally open only to senior American Studies majors. [3] (SBS)

AMER4998 - Senior Honors Research
Course Description

Acquisition, reading, and analysis of primary source research material. Open only to senior honors students. [3] (No AXLE credit)

AMER4999 - Senior Honors Thesis
Course Description

Writing an honors thesis under the supervision of the thesis adviser. [3] (No AXLE credit)

Anthropology

ANTH1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

ANTH1101 - Introduction to Cultural Anthropology
Course Description

The study of diverse cultures in the contemporary world. The ways in which cultures have developed and changed. Intended for students with a general interest in the field of anthropology. [3] (SBS)

ANTH1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

ANTH1130W - America through the Lens of Disney
Course Description

Concepts of gender, family, race, and class through a combination of texts and animated films produced by the Walt Disney Company. Impact on contemporary American cultural values. No credit for students who have earned credit for 1111 section 07. [3] (P)

ANTH1201 - Introduction to Archaeology
Course Description

Archaeological interpretation of global human history from early settled villages through the rise of the first civilizations. Archaeological methods and analysis, interpretive controversies, and cultural heritage. Environment, technology, religion, and human diversity in past cultural transformations. Rise of early cities and states. Repeat credit for students who earned credit for 1201W. [3] (SBS)

ANTH1201W - Introduction to Archaeology
Course Description

Archaeological interpretation of global human history from early settled villages through the rise of the first civilizations. Archaeological methods and analysis, interpretive controversies, and cultural heritage. Environment, technology, religion, and human diversity in past cultural transformations. Rise of early cities and states. Repeat credit for students who earned credit for 1201. [3] (SBS)

ANTH1301 - Introduction to Biological Anthropology
Course Description

Natural selection and evolution of primates and humans. Theories on early human lifeways and behavior. Bioarchaeological and bioanthropological studies of past and present human health and disease. Evaluation of fossil, skeletal, molecular, and artifactual evidence in reconstructing the past. [3] (MNS)

ANTH1601 - Introduction to Language and Culture
Course Description

The interrelationship between language and culture. Language and thought, language ideologies, discourse, and linguistic and social identities. Culture and language change. [3] (SBS)

ANTH2101 - Theories of Culture
Course Description

Survey of the views of anthropological thinkers, from the late nineteenth century to the present, about the basic attributes of humankind and human culture. Comparison of different ideas of how people create culture and in turn are molded by culture. Repeat credit for students who have earned credit for 3900. [3] (SBS)

ANTH2102 - Problems in Anthropological Theory
Course Description

Seminar in anthropological theory: cultural evolution, cultural history, ethnic relations, cultural ecology, archaeological method and theory, social structure, political organizations, and religious institutions. Repeat credit for students who have earned credit for 3901. [3] (SBS)

ANTH2105 - Race in the Americas
Course Description

Origins of the concept of race. Comparison of past and present racial ideologies and practices in the United States, Latin America, and the Caribbean. The intersection of race with gender, ethnicity, class, nationalism, and colonialism. [3] (P)

ANTH2106 - Culture and Power in Latin America
Course Description

Survey of native cultures and Spanish and Portuguese heritage. Fundamental traditions, including marriage and the family, the relationship between men and women, racial and ethnic identity, social class, and religion. Peasant communities and contemporary urban life. [3] (INT)

ANTH2108 - Indigenous Peoples of Lowland South America
Course Description

Native societies of Amazonia, the Orinoco basin, and other forest, savanna, and coastal regions of South America. Ecology, cosmology, social organization, and political relations in historical and contemporary populations. Government policies, human rights, environmentalism, sustainable development, and indigenous activism and advocacy. [3] (SBS)

ANTH2109 - Food Politics in America
Course Description

The cultural, social, political, and economic contexts of the contemporary food system. Issues of health and nutrition. Land use, ecological relations, food chains, and links to climate change. Ethics of food production, distribution, and consumption. Agricultural policy, immigration, work conditions, animal welfare, and local economies. Roles of citizens and consumers. Rise of movements seeking sustainable alternatives. [3] (US)

ANTH2110 - Gender and Cultural Politics
Course Description

Cross-cultural comparison of women's roles and status in western and non-Western societies. Role of myths, symbols, and rituals in the formation of gender identities and the politics of sexual cooperation, conflict, and inequality. Case studies from Africa, the Middle East, Europe, North and South America, Asia, and Melanesia. Serves as repeat credit for ANTH 3145. [3] (P)

ANTH2113W - Food, Identity, and Culture
Course Description

Food in Western and non-Western cultures. Food, power, and the making of social beings. Taboos, cultural preferences, and sensory perceptions. Role of eating in social categories, boundaries, and the creation of self and other. Food fashion, globalization, and food in the media.[3] (INT)

ANTH2114 - Above and Below the Surface: The Caribbean between Climate Change and Tourism
Course Description

Caribbean islands, history, tourism, and ecology. Human-environment interactions. Under water and above water ecologies; Scuba diving and environmental research. Development of interdisciplinary critical thought. Applied research. [3] (INT)

ANTH2115 - Eating the Nation: Gastro-nationalism, neoliberal production, and identity politics in Spain
Course Description

Politics of food, race, and identity in Spain. History of nationalism in Spain and Basque and Catalán separatism. Spanish national cuisine; local food politics as articulations of independence movements. Food ways with respect to production, delivery, and consumption: regional processes, race, and migration. [3] (SBS)

ANTH2116W - Coffee: Biology, Culture, and Political Economy
Course Description

Coffee from bean to cup. Plant biology and pharmacology, agricultural and economic dimensions, and taste and quality. Social and cultural implications of coffee trade and marketing, coffee shop cultures over time, and commodification and decommodification. [3] (SBS)

ANTH2117W - Borders and Territories: The Making of Land and People
Course Description

Migration, migrants, and the nature and making of borders, from inner cities to international and national borders. International migration and global capitalism. Border conflicts, nationalism, and territories. [3] (INT)

ANTH2118 - Revolutionary Cities: Urban Uprisings in Paris and Barcelona
Course Description

Paris in French Revolution, 1871 Paris Commune, and May 1968. Barcelona in Catalan nationalism, Spanish Revolution. Political ideologies of revolution, theories of power, forms of self-organization, and protest tactics. Role of art, collective gatherings, and performance in revolution. Legacies of revolution in contemporary politics, social movements, and urban uprisings. Offered on a graded basis only. [3] (SBS)

ANTH2120 - Sports, Culture, and Society
Course Description

Multifaceted role of sports in culture and society, past and present. Cross-cultural perspectives on U.S. sports and related practices. [3] (SBS)

ANTH2130 - Global Infrastructure and Everyday Life
Course Description

Relations between infrastructure and society around the world, past and present. Analysis of large technical systems as sites of cultural meaning, political struggle, and everyday social interaction. Water, energy, communication, and transportation networks in Africa, Asia, and the Americas, with an emphasis on Latin America. Offered on a graded basis only. [3] (INT)

ANTH2150 - Urban Ecology
Course Description

Environmental conditions and consequences of human and non-human life processes in cities through history. Transformations of landscapes, food systems, social inequality, and built environments. Origins of cities, gentrification, urban planning, green activism, and environmental justice. Long-term perspectives on climate change, political ecology, environmental history, green politics, and prospects for sustainability. [3] (SBS)

ANTH2160 - Creating Community
Course Description

Creation, maintenance, and transformation of communities through time. Community as a village or settlement, and as an "imagined" or virtual aspect of social identity. Behaviorist, interactionist, discursive, and identity-oriented anthropological approaches to community. Community organization and the built environment. Ancient and modern case studies. [3]

ANTH2160W - Creating Community
Course Description

Creation, maintenance, and transformation of communities through time. Community as a village or settlement, and as an "imagined" or virtual aspect of social identity. Behaviorist, interactionist, discursive, and identity-oriented anthropological approaches to community. Community organization and the built environment. Ancient and modern case studies. Serves as repeat credit for either 2160 or 3160 Anthropologies and Archaeologies of Community. [3] (SBS)

ANTH2170W - Contemporary Indigenous Cultures in Global Context
Course Description

Present-day global indigenous identities. Historical processes of colonialism, displacement, marginalization, and forced assimilation. Indigenous resistance and agency, indigenous social media, experiences of urban indigeneities, indigenous queer studies. Writing cyber-ethnography of influencers on social media platforms. [3] (INT)

ANTH2211 - Archaeology
Course Description

An introduction to the methods used by archaeologists to study the nature and development of prehistoric societies. Approaches to survey, excavation, analysis, and interpretation are explored through lectures, case studies, and problem assignments. [3] (SBS)

ANTH2214 - Art and Architecture of the Ancient Americas
Course Description

Visual arts and built environments of indigenous South America, North America, and the Caribbean prior to European contact. Sacred, cultural, and historical influences on architecture and iconography. [3] (INT)

ANTH2220 - Human Landscapes
Course Description

Human-environment interactions in the formation of landscapes and settlement systems. Uses of archaeology, cultural anthropology, and cross-cultural comparison to understand social space, sacred landscapes, urban plans, and historical ecology. Methods of interpretation through quantitative, social, and symbolic analysis. Repeat credit for students who earned credit for 2220W. [3] (SBS)

ANTH2220W - Human Landscapes
Course Description

Human-environment interactions in the formation of landscapes and settlement systems. Uses of archaeology, cultural anthropology, and cross-cultural comparison to understand social space, sacred landscapes, urban plans, and historical ecology. Methods of interpretation through quantitative, social, and symbolic analysis. Repeat credit for students who earned credit for 2220. [3] (SBS)

ANTH2221 - Old World Archaeology
Course Description

Ancient Cultures of the Old World. Archaeology of the Near East, Africa, Asia, and Oceania. The origins of the great civilizations of Egypt and Mesopotamia. The beginnings of cities, agriculture, trade, and empires in light of recent archaeological discoveries. [3] (INT)

ANTH2222 - North American Archaeology
Course Description

The origins of native North American culture. Migration from Asia, early hunters and gatherers, and the extinction of ancient fauna. Evolution of social complexity, ecological adaptations, and prehistoric interaction as seen in the archaeological record of the continent. [3] (US)

ANTH2223 - Native North Americans
Course Description

Indian societies of North America; their archaeological origins, development, and changing adaptation to white society. [3] (US)

ANTH2224 - Cultural Resource Management; Applied Archaeology in the United States
Course Description

History, legislation, methods, and stakeholders involved in Cultural Resource Management (CRM). Archaeological and historic preservation research under federal, state, and local laws. Knowledge and skills needed for a career in CRM. Archaeological fieldwork and field trips to local archaeological sites. Suitable for Immersion projects. Prerequisite: 1201. [3] (SBS)

ANTH2225 - Climate Change, Collapse, and Sustainability in History
Course Description

The Holocene until 1600 AD. Archaeological perspectives on human society and relation to the environment over time. Historical ecology, anthropogenic climate change, domestication, colonial ecosystems, environmental justice. Case studies of cultures and peoples: Maya, Easter Island, Andes, Norse, American Southwest. Application of ancient innovations to address present concerns. [3] (P)

ANTH2226W - Modern-World Archaeology
Course Description

Historical archaeology, investigation of the post-1500 world, origins of modernity, and global networks. Colonialism, capitalism, racialization, and Eurocentrism. Social inequality. Structural history, network theory, world-systems analysis, dialectical thinking, epochal structures, microhistory, material culture, and socio-spatial analysis. [3] (SBS)

ANTH2227 - Food in the Ancient World
Course Description

Development of agriculture from around 8,000 BCE to the contact between Old and New Worlds in 1492. Role of foodways in human societies and impact on historical and environmental change. Integration of foodways with social and cultural systems such as gender, identity, ideology, and trade. Elements of historical cuisines, including cooking techniques, meat, and alcohol. Excursions to local sites of agricultural, archaeological, and food-related relevance. [3] (SBS)

ANTH2228W - The Green Planet: Plants in Human History
Course Description

Plants and the political economy, colonialism, and history of science, including history of archaeological theory. Environmental reconstruction, archaeological methods for reconstructing human-plant interaction. Introduction to botany: taxonomy, systematics, evolution. Introduction to paleobotany: food processing, diet, microbotany. Naturalism, equilibrium, and archaeological theory. Human-plant interaction in the ancient world; future farming. Offered on a graded basis only. [3] (P)

ANTH2229 - Contested Ground: Sacred Sites Across the Ancient World
Course Description

Sacred places and structures from the Paleolithic to the medieval period. Comparisons of religious sites worldwide. Emphasis on cCultural heritage and the historical and contemporary politics of ancient religious sites. [3] (P)

ANTH2229w - Contested Ground: Sacred Sites Across the Ancient World
Course Description

Sacred places and structures from the Paleolithic to the medieval period. Comparisons of religious sites worldwide. Emphasis on cCultural heritage and the historical and contemporary politics of ancient religious sites. [3] (P)

ANTH2230 - South American Archaeology
Course Description

From 12,000 years ago to the present. Archaeology, ethnohistory, and ethnography. [3] (SBS)

ANTH2231 - Ancient Andean Civilizations
Course Description

Introduction to the archaeology and peoples of ancient South America. Early hunters and gatherers, origins of agriculture and urbanism, and the rise and fall of the Huari and Inca empires. [3] (INT)

ANTH2242 - The Archaeology of Ancient Maya Civilization
Course Description

Case study in cultural evolution. Archaeological evidence and social theory on the enigmatic origins, complex nature, and sudden collapse of the ancient Maya civilization. Repeat credit for students who have earned credit for 2242W. [3] (INT)

ANTH2242W - The Archaeology of Ancient Maya Civilization
Course Description

Case study in cultural evolution. Archaeological evidence of and social theory on the enigmatic origins, complex nature, and sudden collapse of the ancient Maya civilization. Repeat credit for students who have earned credit for 2242. [3] (INT)

ANTH2250 - Contemporary Middle East and Kurdistan
Course Description

From Ottoman and Safavid empires to Syria, Turkey, Iran, and Iraq. Kurds, Kurdish history, and the Middle East. Nationalism, Kurdish ethnicity, and uprisings; Kurdish politics across four nation-states. Kurdish community in Nashville. [3] (INT)

ANTH2275 - Untimely People and Matters
Course Description

Time's effects on people and societies. Culturally constituted temporalities; notions of embodiment and alterity. Study of social change; process of innovation through invention and adaptation. Othering non-Western societies as traditional and unchanging. [3] (HCA)

ANTH2275W - Untimely People and Matters
Course Description

Time's effects on people and societies. Culturally constituted temporalities; notions of embodiment and alterity. Study of social change; process of innovation through invention and adaptation. Othering non-Western societies as traditional and unchanging. [3] (HCA)

ANTH2342 - Biology of Inequality
Course Description

Biological and health consequences of racial and social inequalities. Psychosocial stress and measurement of its health impact. Effects on disease and precursors to disease. Measures of molecular biology, such as epigenetics and gene expression. Biomarkers of inflammation, cardiometabolic health, and immune function. [3] (SBS)

ANTH2370 - Death and the Body
Course Description

Cross-cultural study of death rituals. Mortuary archaeology and anthropology of death and the body. Biological and social perspectives on the corpse and living body, and their treatment in ritual and everyday life. The body as biological specimen and social artifact. Nature of beauty, body modification, and adornment. [3] (SBS)

ANTH2371 - Reading the Bones: Bioarchaeology and Forensic Studies in the Peruvian Andes
Course Description

Maymester: Two weeks on campus followed by field and lab work in rural Peru. Analysis of archaeological mummies and skeletons. Bioarchaeology and forensics. Archaeological site visits and museum tours in Lima and Arequipa. [3] (INT)

ANTH2375 - Making Racism Visible: Media and Civil Rights from MLK to Black Lives Matter
Course Description

African American, American Indian, and intersectional racial justice movements from 1950 to present. Role of mass media, documentary film, and social media in political struggles for racial justice in the United States. [3] (P)

ANTH2380W - Latinx/AfroLatinx Ethnographies: The (Un)Making of Latinidades
Course Description

Social histories and contemporary lives of groups often attributed Latinidad through ethnographic texts. Issues of Whiteness, anti-Blackness and anti-Indigeneity with(in) Latinidad. History of "Black and Latino" solidarity. Nation, diaspora, citizenship, race, ethnicity, culture. Afro-Latinidad(es), New Afro-Latinx Movement. Rise of social movements seeking political and social alternatives. Serves as repeat credit for ANTH 3890, section 03 in spring 2023. [3](P)

ANTH2381W - The Clothes We Wear: Textiles, Clothing and Fashion in a Global World
Course Description

Introduction to an anthropology of textiles, dress, and fashion. Material culture; textile production and consumption in the global world. [3] (INT)

ANTH2385W - (Re)Imagining Education: Ethnography of Schools and Schooling
Course Description

Role of schools and schooling in (re)producing and resisting educational inequities. Ethnography, ethnographic methods, participant observation. Schools and the (re)production of categories of race, ethnicity, gender, class. Rise of movements to (re)imagine school/schooling. Serves as repeat credit for ANTH 3890, section 04 in Spring 2023. [3] (P)

ANTH2400 - Public Health, Language, Media, and Risk Management
Course Description

Role of language in the politics and ethics of expert, government, and community stakeholder responses to epidemics, environmental pollution, and natural disasters. Theory and case studies of communication in U.S. and global crises. Uses of science, narrative, and metaphor in formation of health policy and health inequalities based in race, ethnicity, sexuality, and geographic marginalization. [3] (P)

ANTH2601 - Introduction to Linguistics
Course Description

Systematic study and analysis of human language. Formation of language sounds, sound systems, the structure of words, the structure of sentences, meaning, language change. Data from diverse languages of the world. [3] (SBS)

ANTH2602 - The Social life of Language
Course Description

Study of language in cultural social contexts; methods of linguistic inquiry; linguistic analysis as tool for ethnographic investigation. Language in global and local contexts. Serves as repeat credit for students who completed 2602W. [3] (SBS)

ANTH2602W - The Social life of Language
Course Description

Study of language in cultural social contexts; methods of linguistic inquiry; linguistic analysis as tool for ethnographic investigation. Language in global and local contexts. Serves as repeat credit for students who completed 2602. [3] (SBS)

ANTH2603 - Comparative Writing Systems
Course Description

The origins, development, and social uses of writing in the ancient Middle East, Mediterranean, and Mesoamerica. Decipherments of hieroglyphic systems. Literacy, historiography, and cross-cultural translation. [3] (HCA)

ANTH2800 - Theatre and Social Change: Theatre as Applied Activism
Course Description

Role of theatre in social justice and social change movements, including Playback Theatre and Theatre of the Oppressed. Conducting improv theatre in class or in collaboration with a local / campus organization. Not open to students who have earned credit for 3890 section 05 offered spring 2020. [3] (HCA)

ANTH3050 - A.I. and Material Culture
Course Description

Applying artificial intelligence to archaeology. Statistics, machine learning, and deep learning. Hands-on examples from archaeological excavations as well as laboratory studies. [3] (HCA)

ANTH3120 - Sociocultural Field Methods
Course Description

Research design and proposal writing, access to data, ethical issues, sampling techniques, interviewing questionnaire design and question writing, data analysis. [3] (SBS)

ANTH3121 - Global Wealth and Poverty
Course Description

The production of inequality. How wealth is accumulated, lost, exchanged, and displayed; how poverty is created, endured, and overcome. Explanations in terms of luck, hard work, immorality, occult forces, and public policies. Case studies. [3] (P)

ANTH3122 - The Anthropology of Globalization
Course Description

Perspectives on globalization based on ethnographic case studies. The impact of new technologies on native cultures; different cultural meanings of global commodities; creation of new diaspora cultures; effects of neoliberal reforms on local economies; ethnic movements and terror networks. [3] (INT)

ANTH3125 - Public Scholarship Practicum in Community Research
Course Description

Theory and methods for publicizing research to policy makers, organizations, and the public. Uses of media. Communicating research in civil rights; environmentalism; and advocacy on gender, sexuality, health, and religion. Translating original scholarship into pieces for newspapers, blogs, websites, video resources, and public presentations. Prior research experience is expected. Consent of instructor is required. [3] (No AXLE credit)

ANTH3130 - Andean Culture and Society
Course Description

Historical and archaeological background, languages, economy, environment, and cultural adaptation of Andean peoples. Spanish and native American heritage. Religion, family structure, political organization, contemporary social issues, and economic background. Urban and rural traditions, social movements, and change. [3] (SBS)

ANTH3132 - Social Movements
Course Description

Collective action, past and present. Class- and identity-based movements, transnational activism, and networks. The early U.S. labor movement; 1960s gay, women's and civil rights movements. Global struggles for social justice. [3] (INT)

ANTH3133 - Political Anthropology: States and Their Secrets
Course Description

Development, workings, and techniques of the ancient and modern state. Bureaucracy, state secrecy, diplomacy, organization of warfare, surveillance. Anthropological theories of power, state formation, nationalism, authority, influence, and coercion. Case studies of atrocities, disclosure of secrets, and whistleblowing. Ethics and responsibility in complex power structures. [3] (SBS)

ANTH3134 - Human Rights of Indigenous Peoples
Course Description

Major concepts and legal frameworks for indigenous self-governance, cultural rights, and environmental stewardship. Local and transnational indigenous rights movements. [3] (P)

ANTH3135 - Development, Social Enterprise, Social Justice
Course Description

Theories of economic and human development. Multidimensional approaches to poverty and well-being. Roles of inequality, discrimination, and social justice. Practical focus on social entrepreneurship in international context. [3] (P)

ANTH3136 - Cultural Heritage in Context: The Future of the Past
Course Description

Historical and archaeological views on heritage and heritage management. Ownership of the past, indigenous voices, and "world heritage." Ramifications of national and international heritage legislation. Economic development, tourism, and cultural practice; effects of climate change and disaster on heritage sites. [3] (INT)

ANTH3138 - Global Food Politics
Course Description

Ecological, political, economic, and cultural dynamics in the world food system. Historical and contemporary agricultural methods. Energy, land use, and climate change. Public health and nutrition. Hunger, food scarcity, and biotechnologies. Commodity chains and labor conditions. Movements for food security, food sovereignty, fair trade, and consumer information. [3] (INT)

ANTH3140 - Myth, Ritual, Belief: The Anthropology of Religion
Course Description

Cross-cultural survey of religious and ritual beliefs in light of theories of religion. Topics include sacrifice, myth, witchcraft, divination, religious change, and millenarian movements. [3] (HCA)

ANTH3141 - Anthropology of Healing
Course Description

Ritual, symbols, belief, and emotion in health, illness, and therapeutic processes. Practices and politics of healing in western and non-western societies, including shamanism, faith healing, ecstatic religious experience, alternative medicine, and biomedicine. Mind-body interactions, medical pluralism, relations between patients and healers, and implications for improving medical care. [3] (P)

ANTH3143 - Medical Anthropology
Course Description

Biocultural aspects of human adaptations to health, disease, and nutrition. Non-Western medical and psychiatric systems. Effects of cultures on the interpretation, diagnosis, and treatment of illness. Case studies from Africa, Oceania, Latin America, and the contemporary United States. [3] (SBS)

ANTH3144 - Politics of Reproductive Health
Course Description

Reproductive health politics, with focus on the United States. Role of broader social, economic, and cultural concerns in diverse positions and public debates. How sexuality, race, class, gender, and disability shape experiences of conception, pregnancy, childbirth, kinship, and new medical technologies. [3] (P)

ANTH3145 - Sexuality, Gender, and Culture
Course Description

Theories and case studies of sexuality and gender in Western and non-Western societies. Cross-cultural perspectives on how class, race, ethnicity, culture, and power influence sexual norms and gender roles. Performativity; masculinity and femininity; kinship; religion and sexuality. Serves as repeat credit for ANTH 2110. [3] (P)

ANTH3150 - Cognitive Anthropology
Course Description

Methods and approaches in linguistics and cognitive sciences. Exploration of culture and thought, and how culture affects our ways of reasoning, thinking, and behavior. Repeat credit for students who completed 3150W. [3] (SBS)

ANTH3150W - Cognitive Anthropology
Course Description

Methods and approaches in linguistics and cognitive sciences. Exploration of culture and thought, and how culture affects our ways of reasoning, thinking, and behavior. Repeat credit for students who completed 3150. [3] (SBS)

ANTH3161 - Colonial Encounters in the Americas
Course Description

Theoretical discussion of colonialism as a sociocultural process. Comparative colonialism in pre- and post-Hispanic contexts. Methodological consideration of archaeological and archival analyses and their complementary epistemological statuses. Pan-American case studies. [3] (SBS)

ANTH3162 - Material Culture of New World Slavery
Course Description

Enslaved Africans' lives in the New World from an archaeological perspective. Housing, artifacts, health, religion, and resistance in North America, South America, and the Caribbean. Serves as repeat credit for students who earned credit for ANTH 3890-01 in Fall 2014. [3] (SBS)

ANTH3200 - Ancient Cities
Course Description

Comparative examination of early cities in the Old World and pre-Columbian America. Analysis of social and economic processes supporting preindustrial urbanism. Role of geography, ideology, trade, and settlement systems in the rise of early urban societies. [3] (SBS)

ANTH3202 - The Collapse of Civilizations
Course Description

Causes of the decline or collapse of complex societies. Old World and New World examples. Historical, anthropological, and paleoecological theories and controversies. [3] (P)

ANTH3240 - Ancient Mesoamerican Civilizations
Course Description

Development of pre-Hispanic civilization in Mesoamerica from the beginnings of village life to the rise of the great states and empires: Olmec, Maya, Toltec, and Aztec civilizations. [3] (INT)

ANTH3241 - The Aztecs
Course Description

Origins of the Aztec peoples of central Mexico and their culture; history and structure of the Aztec empire; pre-Columbian social, political, and economic organization; warfare and religion; the Spanish conquest; colonial society in central Mexico; ethno-graphic study of modern descendants of the Aztecs. [3] (INT)

ANTH3243 - Ancient Maya Gods and Rulers
Course Description

Politics and religion in Classic Maya culture, 100-1000 C.E. Sources and symbols of power, ritual life, and metaphysical underpinnings of hierarchy and cosmology. Relationships among ideology, religion, and politics. Repeat credit for students who have earned credit for 3243W. [3] (SBS)

ANTH3243W - Ancient Maya Gods and Rulers
Course Description

Politics and religion in Classic Maya culture, 100-1000 C.E. Sources and symbols of power, ritual life, and metaphysical underpinnings of hierarchy and cosmology. Relationships among ideology, religion, and politics. Repeat credit for students who have earned credit for 3243. [3] (SBS)

ANTH3250 - The Inca Empire
Course Description

The rise and fall of the Inca state in the Southern American Andes. Inca society, agriculture, economy, warfare, ancestor worship, mummies, and royal wealth. Imperial expansion, the role of the feasting in Inca politics, and place of ecology in Inca religion. Destruction of the empire during the Spanish conquest; persistence of pre-Columbian culture among Inca descendants in Peru and Bolivia. [3] (INT)

ANTH3260 - Crafting Pottery in the Ancient World
Course Description

Pottery as craft or locally-grounded knowledge of making. Phenomenological issues of perception, objectification, and embodiment. Practice-based versus formal textbook learning. Hands-on experience making and studying ceramic vessels. Qualitative and quantitative analysis of ceramic forms, fabrics, and decorations. Repeat credit for students who have earned credit for 3260W. [3] (HCA)

ANTH3260W - Crafting Pottery in the Ancient World
Course Description

Pottery as craft or locally-grounded knowledge of making. Phenomenological issues of perception, objectification, and embodiment. Practice-based versus formal textbook learning. Hands-on experience making and studying ceramic vessels. Qualitative and quantitative analysis of ceramic forms, fabrics, and decorations. Repeat credit for students who have earned credit for 3260. [3] (HCA)

ANTH3261 - Introduction to Geographic Information Systems and Remote Sensing
Course Description

Computerized graphics and statistical procedures to recognize and analyze spatial patterning. Spatial data-collection, storage and retrieval; spatial analysis and graphic output of map features. Integration of satellite imagery with data from other sources through hands-on experience. Assumes basic knowledge of computer hardware and software. [3] (MNS)

ANTH3262 - Ethics in Anthropology, Archaeology, and Development
Course Description

Ethical perspectives on contemporary problems of archaeological and anthropological research, interaction, and interpretation of past and present non-Western societies. [3] (P)

ANTH3270 - Underwater and Maritime Archaeology
Course Description

History, theory, and methodology in underwater, marine, and nautical archaeology. Technologies for survey, excavation, and analysis. Cultures past and present, impacts of climate change, and connections to marine resources in the present. [3] (INT)

ANTH3333 - Topics
Course Description

Topics vary by section and instructor. May be repeated for credit; students may register for more than one section of this course in the same semester. [3]

ANTH3333W - Topics
Course Description

Topics vary by section and instructor. [3]

ANTH3343 - Biology and Culture of Race
Course Description

Biological and cultural perspectives on race in the United States and internationally. Patterns of human genetic variation. Biomedical use of racial categories. Social and cultural construction of race. Racism and racial discrimination. Racial disparities in health. [3] (P)

ANTH3344 - Genetic Anthropology Lab Techniques
Course Description

Applications of molecular anthropology techniques. DNA data analysis. Genetic methods and findings. DNA comparisons between world populations. Studies of ancient DNA. [3] (MNS)

ANTH3345 - Genetics in Society
Course Description

Influence of modern genetic technologies in everyday life. Social meanings of scientific data. Genetics of identity. Personalized genetic medicine and consumer-driven genetic testing. Genetics of food production. Assisted reproductive technologies. Revolutionary societal impacts of science. Offered on a graded basis only. [3] (P)

ANTH3346 - Human Adaptation and Disease
Course Description

Evolutionary perspectives on biological and cultural adaptations to physical and pathogen environments. Human variation, human evolutionary ecology, epidemiology, and evolution of disease. Specific focus on epidemiological transitions. Offered on a graded basis only. Serves as repeat credit for ANTH 3890-02 in Fall 2016. [3] (MNS)

ANTH3347 - Bioethics in Anthropology
Course Description

Humans as study subjects in research. Human complexities and experimentation; eugenics; and ethical, legal, and social issues of research. [3] (SBS)

ANTH3371 - Social and Health Consequences of Pandemics
Course Description

Origins, spread, mortality, and the biological and social consequences. The epidemic of bubonic plague in the 1300s, known as the European Black Death. The devastation of indigenous New World populations by European diseases after 1492. Social and medical responses. Implications for modern societies. [3] (SBS)

ANTH3372 - Human Osteology
Course Description

Anatomy of the human skeleton. Determination of age, sex, stature, and biological affinity from bones and dentition. Analysis of archaeological skeletal remains for diagnosis of disease and identification of cultural practices. Use of human remains in criminal investigation. [3] (MNS)

ANTH3401W - Evolutionary Biology of Women (Womxn)
Course Description

Female and womxn's reproductive biology from an evolutionary and biocultural perspective. Life history phases including puberty, pregnancy, birth, lactation, and menopause. Evolutionary theory and human behavioral ecology. How environmental and cultural factors shape biological expression and experiences. [3] (MNS)

ANTH3620 - Maya Language and Literature
Course Description

Introduction to a contemporary Maya language. Linguistic analysis and cultural concepts. By permission of instructor. May be repeated for the study of different Maya languages for a total of 6 credits. Repeat credit for students who completed 3620W. [1-6; maximum of 6 credits total for all semesters of ANTH 221] (No AXLE credit)

ANTH3622 - Classic Maya Language and Hieroglyphs
Course Description

Linguistic analysis of Classic Maya hieroglyphs, 100-1000 C.E. Methods of decipherment reading and interpreting an ancient script. Role of socioeconomic status in literacy. Repeat credit for students who completed 3622W. [3] (SBS)

ANTH3622W - Classic Maya Language and Hieroglyphs
Course Description

Linguistic analysis of Classic Maya hieroglyphs, 100-1000 C.E. Methods of decipherment reading and interpreting an ancient script. Role of socioeconomic status in literacy. Repeat credit for students who completed 3622. [3] (SBS)

ANTH3850 - Independent Research
Course Description

Readings on selected topics (of the student's choice) and the preparation of reports. [1-3] (No AXLE credit)

ANTH3851 - Independent Research
Course Description

Readings on selected topics (of the student's choice) and the preparation of reports. [1-3] (No AXLE credit)

ANTH3860W - Research Design
Course Description

Practical and theoretical knowledge required for embarking on an independent research project. Methodological approaches; scientific writing skills. Serves as repeat credit for ANTH 3890, section 01 in Spring 2023. [3] (SBS)

ANTH3865 - Field Research
Course Description

Directed field research on topics of the student's choice. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [1-6] (No AXLE credit)

ANTH3866 - Archaeological Excavation
Course Description

Excavation techniques and field recording methods through participation in an archaeological dig. Excavation unit layout, digging techniques, feature and artifact identification. Mapping and field instrumentation. Data registry, statistical analysis, artifact curation, and conservation. Stratigraphy, relative and absolute dating, sampling strategies and techniques, data management. Research design and archaeological ethics. [4] (MNS)

ANTH3867 - Digital Archaeology: Analysis and Curation of Material Culture
Course Description

Laboratory analysis of archaeological artifacts using digital methods. Three dimensional modeling of artifacts, digital photography, artifact technical diagramming. Virtual Reality and other representational frameworks. PXRF compositional analysis. Artifact cleaning, labeling, and preservation techniques. Assemblage curation and integration with databases. Preparation of artifacts for exhibition. Ethics of curation, representation, repatriation. Offered on a graded basis only. [3] (MNS)

ANTH3868 - Introduction to Archaeological Science
Course Description

Study of the human past applying methods from geography, physics, earth sciences, and biological sciences. Integrated interdisciplinary approaches and hands-on learning to conduct scientific projects with STEM research, conceptualize research questions, and implement a variety of research methods and techniques. Oriented to students from Social Sciences and Humanities. [3] (MNS)

ANTH3880 - Internship Training
Course Description

Offered on a Pass/Fail basis only and must be taken concurrently with 3881. Hours of 3880 will not count toward the Anthropology major or minor. Students from any discipline can gain experience working with a local, national, or international organization in developing a project to broaden their understanding of anthropological issues. Hours for background readings and research will be completed in ANTH 3881 concurrently with and regardless of the numbers of hours taken in internship training in 3880. Normally a 2.90 grade point average, 6 hours of prior work in ANTH, and prior approval of the student's plan by the director of undergraduate studies in Anthropology are required. A research paper and report must be submitted at the end of the semester during which the internship training is completed. Corequisite: 3881. [Variable credit: 1-9] (No AXLE credit)

ANTH3881 - Internship Readings and Research
Course Description

Readings and research conducted under the supervision of a member of the Anthropology department and a substantial research paper are required. Students from any discipline can gain experience working with a local, national, or international organization in developing a project to broaden their understanding of anthropological issues. Hours for background readings and research will be completed in ANTH 3881 concurrently with and regardless of the numbers of hours taken in internship training in 3880. Normally a 2.90 grade point average, 6 hours of prior work in ANTH, and prior approval of the student's plan by the director of undergraduate studies in Anthropology are required. A research paper and report must be submitted at the end of the semester during which the internship training is completed. Corequisite: 3880. [Variable credit: 1-6] (No AXLE credit)

ANTH3890 - Special Topics
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

ANTH4120 - The Archaeology of Agriculture: A Technological Approach
Course Description

Agricultural technologies and their impacts on socio-environmental transformations through time in the Andes and elsewhere. Theories of technology emergence and innovation, path dependence, actor network theory, resilience, and antifragility models. Classic works on agriculture, smallholder farmers, intensification, and landscape capital. Interdisciplinary approaches and policy perspectives on farming, ecosystem services, and agroecosystems. [3] (INT)

ANTH4152 - Activism and Social Change: Theory, Experience, and Practice
Course Description

Introduction to theory and ethics of social activism and advocacy. Roles of academics and scholars. Theories of political organizing and mobilization. Application of anthropological research methods. Case studies in local, national, and global social issues, processes of civic mobilization, and social change. [3] (SBS)

ANTH4153 - Economic Anthropology
Course Description

Modern and postmodern cultural organization of Western and non-Western economies. Crosscultural comparison of concepts of self-interest and rationality. Relation of the growth of post-industrial (service and information) economies to economic strategies of ethnic groups. Survey of indigenous alternatives to development. Theoretical issues grounded in case studies from our own and other cultures. [3] (SBS)

ANTH4154 - Environmental Anthropology
Course Description

The relationship between human beings and the environments that sustain them. Global diversity of human ecological adaptations. Hunter-gatherers, pastoral nomads, slash-and-burn agriculturalists, and irrigation agriculturalists. Human impact on the environment. Theories of human ecological interaction. [3] (SBS)

ANTH4155 - Realities and Worldviews: Why Culture Matters
Course Description

Worldviews and constructed realities that influence human behavior. Stereotyping and conflict as triggered by ontological misunderstandings. Western ontology, science, and understanding the Other. Interaction of worldviews and human behavior such as in resource management and public health. Offered on a graded basis only. [3] (SBS)

ANTH4156 - Racial Experience and Politics
Course Description

Politics in liberal democracies. Intellectual history and theory of racial experience; ethnographic studies of peoples' experience of race in everyday life; global and cross-cultural perspectives on processes of racialization. [3] (P)

ANTH4160 - Research Methods Workshop
Course Description

Issues, methodologies, traditions, approaches, and problems in the discipline. Limited to juniors and seniors with preference given to majors and minors. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ANTH4201W - Origins of Social Inequality
Course Description

Global and archaeological perspective on how human beings have understood social differences over time. Contributing factors to the emergence of inequality. [3] (P)

ANTH4345 - Human Evolutionary Genetics
Course Description

Core issues in human evolution and population genetics. Molecular evidence for the origin of modern humans, reconstruction of human migrations, race, and detection of admixture between populations. Implications for human disease. Offered on a graded basis only. Prerequisite or corequisite: BSCI 1100, BSCI 1105, or BSCI 1510. [3] (MNS)

ANTH4373 - Health and Disease in Ancient Populations
Course Description

Paleopathology of mummies and skeletons. Skeletal evidence for violence and warfare. Gender and social status differences in diet, disease, and activity patterns to reconstruct ancient social organization. Biological relationships among ancient and modern populations. Ethics and federal law in the study of human remains. Laboratory analysis of skeletons. [3] (MNS)

ANTH4998 - Honors Research
Course Description

Research to be done in consultation with a member of the faculty in anthropology. Open only to those beginning honors work in anthropology. May be repeated for a total of 6 credits. [1-6; maximum of 6 credits total for all semesters of 4998] (No AXLE credit)

ANTH4999 - Honors Thesis
Course Description

Open only to seniors in the departmental honors program. Students completing this course with distinction, including a thesis and final examination, will earn honors in anthropology. Prerequisite: 4998. May be repeated for a total of 6 credits if there is no duplication in topic. [1-6; maximum of 6 credits total for all semesters of 4999] (No AXLE credit)

Arabic

ARA1101 - Elementary Arabic
Course Description

Development of reading, listening, speaking, and writing skills. No credit for students who have earned credit for a more advanced Arabic language course. [5] (No AXLE credit)

ARA1102 - Elementary Arabic
Course Description

Continuation of 1101. Development of reading, listening, speaking, and writing skills. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 1101. [5] (INT)

ARA2201 - Intermediate Arabic
Course Description

Practice and development of language skills at the intermediate-advanced level. Intensive work in spoken Arabic with emphasis on vocabulary acquisition, reading comprehension, and writing skills. Advanced grammar, modern Arabic word formation, verb aspect usage, and structure of complex sentences. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 1102. [3] (INT)

ARA2202 - Intermediate Arabic
Course Description

Continuation of 2201. Practice and development of language skills at the intermediate-advanced level. Intensive work in spoken Arabic with emphasis on vocabulary acquisition, reading comprehension, and writing skills. Advanced grammar, modern Arabic word formation, verb aspect usage, and structure of complex sentences. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 2201. [3] (INT)

ARA3101 - Advanced Arabic
Course Description

Further development of listening, reading, speaking, and writing skills in the Arabic language. Emphasis on grammar and literary techniques. Offered on a graded basis only. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 2202. [3] (INT)

ARA3102 - Advanced Arabic
Course Description

Continuation of 3101. Further development of listening, reading, speaking, and writing skills in the Arabic language. Emphasis on grammar and literary techniques. Offered on a graded basis only. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 3101. [3] (INT)

ARA3201 - Media Arabic
Course Description

Listening to, discussing, simulating, and analyzing Arabic media materials. Coverage of current and historical events, such as TV broadcasts, headline news, documentaries, and public discussions on political, religious, and cultural issues. Offered on a graded basis only. Prerequisite: 3102. [3] (INT)

ARA3211 - Advanced Seminar in Arabic
Course Description

Analysis of style and forms. Poetry, novels, popular literature, and historical chronicles. Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3102. [3] (HCA)

ARA3301 - Arabic of the Qur'an and Other Classical Texts
Course Description

Syntactical and morphological features of Classical Arabic. Differences and similarities with Modern Standard Arabic in vocabulary usage, semantic extensions, and context. Vocabulary borrowing. Texts drawn from the Qur'an, Hadith, and Sira (biographical) literature. [3] (INT)

Aramaic and Syriac

ARAM2400 - Introduction to Classical Syriac
Course Description

Script and basic grammar. Historical context of language as Aramaic dialect. Simple readings from Syriac translations of Christian and Jewish scripture. [3] (INT)

ARAM2500 - Egyptian Aramaic
Course Description

Reading 5th century BCE texts from the Jewish community at Elephantine. Papyri and ostraca. Historical, linguistic, and cultural context. Relationship to Biblical tradition. [3] (INT)

Art Studio

ARTS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE Credit)

ARTS1099 - Maymester Contemporary Art Blitz
Course Description

Intensive review of contemporary art through excursions to museums, galleries, and artists' studios. Insights from curators, dealers, and films. Cities vary each year. May be repeated for credit more than once if there is no duplication in topic. [3] (HCA)

ARTS1101 - Introduction to Studio Art
Course Description

Processes, fundamental elements, and principles of art. Drawing, painting, printmaking, sculpture, photography, installation, and time-based art. [3] (HCA)

ARTS1102 - Drawing and Composition I
Course Description

Introduction to drawing: visual problems related to observation, idea formation, composition, media, and various forms of expression. Figure and landscape may be included. [3] (HCA)

ARTS1103 - Drawing From Life
Course Description

Methods used to depict the form and structure of naturalistic subjects, including the human figure. Gesture, sighting & measuring, contour drawing, and value. Metaphorical and narrative use of life forms and the human figure in art. [3] (HCA)

ARTS1104 - Intro to Lens-Based Art
Course Description

Traditional and non-traditional uses of lens-based processes in art and science. Photography, cinematography, macro-vision, micro-vision, visualizing dreams, underwater photography, mapping, and augmented reality. Exploration of photographic representation, time, memory, archives, agency of images. Political and historical contexts. [3] (HCA)

ARTS1105 - Drawing Out of Bounds
Course Description

Composition, connection, and experimentation outside the classroom. Best practices for creating mobile studios for observational examination. History of art-making in "plein air." Nontraditional strategies for exhibiting artwork. [3] (HCA)

ARTS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

ARTS1200 - Photography I: The Analog Moment
Course Description

Aesthetics and techniques of the black-and-white medium. Image taking, making, and production of meaning. Camera use, film exposure, image quality, and darkroom practices. Basic history of photography and grounding the ways of seeing. The eye as a viewfinder. [3] (HCA)

ARTS1201 - Elusive Image: Between Analog and Digital Photography
Course Description

Hybrid analog to digital class. Essential photography skills from camera obscura, analog and digital SLR, to portable device. Basic darkroom and digital workflow printing skills. Photographic obsolescence in the digital era and archeology of media. Historical and contemporary photography practices which define the condition of the medium. [3] (HCA)

ARTS1202 - Photography in Digital Culture
Course Description

Digital photography in today's media landscape. Ubiquitous proliferation of images in public sphere. From image taking to active consuming of images. Digital software. Portfolio and photographic essay building. History of digital media, sequencing, editing, digital output, and social media platforms. [3] (HCA)

ARTS1300 - Painting
Course Description

Technical and conceptual aspects of painting. Individual instruction based on ability and experience. Prerequisite: 1101 or 1102. [3] (HCA)

ARTS1400 - Ceramics
Course Description

Introduction to ceramic design and preparation of clay objects. Hand-building, wheel-throwing, ceramic sculpture, surface enrichment, glazing, and kiln-firing. [3] (HCA)

ARTS1401 - Sculptural Ceramics
Course Description

Hand-building techniques in clay, such as pinch, coil, and slab. Abstract and figurative vessels and forms. Formal, conceptual, and aesthetic aspects of production. Creativity and problem-solving. Glazing and use of electric kilns. Offered on a graded basis only. [3] (HCA)

ARTS1500 - Sculpture
Course Description

Changing concepts, materials, and processes in sculpture. Individual instruction based on ability and experience. [3] (HCA)

ARTS1501 - Assemblage
Course Description

Additive processes in sculpture. Problems involving found objects, kinetic/time-based ideas, and site-specific installations. [3] (HCA)

ARTS1502 - Installation Art
Course Description

Historical survey from 1900 to present; studio practice; formal and conceptual issues. [3] (HCA)

ARTS1503 - Text and Image
Course Description

Intersection of art and writing. History, theory, and practice. Zines, posters, photography, new media, and artists' books. [3] (HCA)

ARTS1504 - Artists' Books
Course Description

Seminar with studio. History of the artist's book in 20th century artistic movements. The book as an artifact of material culture. Production of experimental book forms including sculptural and time-based. Current uses of the book form as metaphor in contemporary art: Anselm Kiefer, Ann Hamilton, Kiki Smith, William Kentridge, Sophe Calle, Dieter Rot. [3] (HCA)

ARTS1505 - Graphic Design
Course Description

Introductory project-based course applying design principles, and visual translation: [3] (HCA)

ARTS1600 - Printmaking:Etching and Relief
Course Description

Introduction to printmaking. Focus on relief printing and etching on copper. Traditional and experimental approaches. [3] (HCA)

ARTS1601 - Printmaking: Screen and Lithography
Course Description

Introduction to printmaking media, focus on screen printing and lithography. Traditional and experimental approaches. [3] (HCA)

ARTS1700 - Video Art
Course Description

Video as an art form. Group and individual productions. Viewing and discussion. Project analysis and critique. Relationship to such traditional media as photography and film. [3] (HCA)

ARTS1701 - Performance Art
Course Description

History, theory, and practice of performance. Vocal studies and conceptual music, personal narrative, performance as a response to the cult-of-celebrity, body art, and performance with new technologies. Collaborative and solo performance projects. [3] (HCA)

ARTS1702 - Portable Media I
Course Description

Creative potential of inexpensive, portable digital media devices. Establishment of a rapid rhythm of practice and experimentation to build an inventory of ideas, methods, and techniques. Historic and contemporary developments in narrative and non-narrative digital video production. [3] (HCA)

ARTS1704 - Digital Animation I
Course Description

Animation with computers. Traditional and experimental animations; interactive web-based projects. [3] (HCA)

ARTS1800 - Sources of Contemporary Art
Course Description

Contemporary studio art practice, issues, and theories. Visual and conceptual influences on living artists; idea formation. Students must participate in artist-in-residence projects. [4] (HCA)

ARTS1900 - Social Collective Art Practice
Course Description

History and practice of making art within the social collective experience. Small group projects based on everyday living in The Commons. Not open to students who have earned credit for ARTS 1111-01. Total credit for this course and ARTS 1111-01 will not exceed 3 hours. Credit hours reduced from second course taken (or test or transfer credit) as appropriate. [3] (HCA)

ARTS2100 - Drawing and Composition II
Course Description

Prerequisite: 1102. [3] (HCA)

ARTS2101 - Life Drawing I
Course Description

Methods used to depict form and structures of the human figure. Gesture, sighting and measuring, contour drawing, and value. Planar and anatomical analysis. Metaphorical and narrative use of the human figure in art. Prerequisite: 1102. [3] (HCA)

ARTS2102 - Drawing: Color Media I
Course Description

Drawing on paper with wet and dry color media. Traditional and experimental approaches. Prerequisite: 1102. [3] (HCA)

ARTS2103 - Experimental Drawing
Course Description

Non-traditional approaches to drawing materials and methods. Drawings as installations, animations, and murals. Prerequisite: 1102. [3] (HCA)

ARTS2104 - Drawing from Life II
Course Description

Methods used to depict form and structure of naturalistic subjects, including the human figure. Gesture, sighting and measuring, contour drawing, and value. Metaphorical and narrative use of life forms and the human figure in art. Prerequisite: 1103. [3] (HCA)

ARTS2200 - Photography Workshop: Research and Form
Course Description

Interdisciplinary photography research. Development of image context and research methods. Community engagement. Collaborative project development and presentation. Lighting and tableaux photography. Activist, performative, and sculptural form of photography. Medium and large format. Photographic book. Special emphasis on diversity, inclusivity and perspectives. Prerequisite: 1200, 1201,1202, or 1101. [3] (HCA)

ARTS2201 - Photography III: Image and Memory in Archive and Context
Course Description

Public and personal photographic and cinematic archives. Translation of archival objects and their material properties into exhibition objects through class discussions and site explorations. Creative writing and community engagement component. Prerequisite: 1200, 1201,1202, or 1101. [3] (HCA)

ARTS2202 - Lives of Images: Narratives and Representation
Course Description

Expanded photographic field. Image in its multiple forms and across platforms, from everyday life and personal to public. Analog to digital translation. New documentary and fictional narratives. Ways of seeing through the lens of gender, race, and class. Creative writing component. Image tableaux and lighting workshops. Prerequisite: 1101, 1200, 1201, or 1202. [3] (HCA)

ARTS2300 - Painting II
Course Description

Prerequisite: 1300. [3] (HCA)

ARTS2400 - Ceramics II
Course Description

Development of ceramic design, both traditional and contemporary, functional and sculptural. Projects develop technical and aesthetic goals. Instruction includes demonstrations, slide presentations, field trips, guest artists, reports. Demonstrations include advanced throwing, complex constructions, glaze development with applications, and kiln-firing. Prerequisite: 1400. [3] (HCA)

ARTS2401 - Concept and Clay: Composite Forms
Course Description

Technical ability in handling clay and conceptual and interpretive elements in functional and/or sculptural forms. Individual solutions in form and surface. Prerequisite: 1400 or 1401. [3] (HCA)

ARTS2500 - Sculpture II
Course Description

Prerequisite: 1500, 1501, or 1502. [3] (HCA)

ARTS2502 - Advanced Installation Art
Course Description

Techniques, processes, and placement. Conceptual and historical practices. Prerequisite: 1502. [3] (HCA)

ARTS2505 - Graphic Design II
Course Description

Intermediate information design principles and visual translation. Hierarchy, typographic formalism, and narrative design. Project-based. Prerequisite: 1505. [3] (HCA)

ARTS2600 - Printmaking II
Course Description

Advanced study in traditional and experimental printmaking processes. Prerequisite: 1600 or 1601. [3] (HCA)

ARTS2700 - Video Art II
Course Description

Viewing, discussion, analysis and critiques. Relationship to photography, film, and performance. Group and individual productions. Prerequisite: 1700. [3] (HCA)

ARTS2701 - Performance Art II
Course Description

History, theory, and practice. Vocal studies, conceptual music, personal narrative, performance as a response to the cult-of-celebrity, body art and performance with new technologies. Collaborative and individual performance projects. Prerequisite: 1701. [3] (HCA)

ARTS2702 - Portable Media II
Course Description

Advanced exploration in use of portable digital media devices. Variety of methods for conceptualizing and making projects; enhanced art making skills. Prerequisite: 1700, 1701, or 1702. [3] (HCA)

ARTS3100 - Drawing and Composition III
Course Description

Prerequisite: 1102 and 2100. [3] (HCA)

ARTS3101 - Life Drawing II
Course Description

Prerequisite: 2101. [3] (HCA)

ARTS3102 - Drawing: Color Media II
Course Description

Prerequisite: 2102. [3] (HCA)

ARTS3300 - Painting III
Course Description

Prerequisite: 2300. [3] (HCA)

ARTS3333 - Engine for Art, Democracy, and Justice
Course Description

Visual representation and multiple arts forms as focus for developing new knowledge and new practices in a forum for diverse approaches and inclusive discussion of experiments in cultural interconnections, historical entanglements, and the consequences of geographies, histories, and politics. Historical legacies and progress toward more just and democratic futures. Critical analysis and experiential projects. Expansion of the so-called South, its relations and interdependence with other geographies. Models of innovative Art practices. [3] (HCA)

ARTS3600 - Printmaking III
Course Description

Advanced study in traditional and experimental printmaking processes. Prerequisite: 2600. [3] (HCA)

ARTS3851 - Independent Research
Course Description

Supervised work beyond regular offerings in the curriculum. Students may only register with consent of instructor involved and with written approval of the director of undergraduate studies. May be repeated for a total of 6 credits if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of ARTS 3851] (No AXLE credit)

ARTS3891 - Selected Topics
Course Description

May be repeated for a total of 9 credits if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 9 credits total for all semesters of ARTS 3891] (HCA)

ARTS3970 - Directed Study: Senior Show and Contemporary Practices
Course Description

Theoretical and practical concerns including professional practices for artists. Students visit exhibitions and discuss contemporary art with directed readings and lectures, participate in critiques, and exhibit their work. Seniors with a concentration in art only. [3] (HCA)

ARTS3971 - Independent Research: Senior Show
Course Description

Research conducted under faculty supervision specifically in preparation for the Senior Show. Open only to senior majors in their final term. [3] (No AXLE credit)

ARTS4998 - Senior Honors Research
Course Description

Research conducted in consultation with a faculty member in Art. Offered on a graded basis only. Open only to honors majors. [3] (No AXLE credit)

ARTS4999 - Senior Honors Thesis
Course Description

Research conducted in consultation with a faculty member in Art. Offered on a graded basis only. Open only to senior honors majors. [3] (No AXLE credit)

Asian Studies

ASIA1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

ASIA1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

ASIA1201 - Writing Southeast Asia
Course Description

Literary representations, including novels and personal memoirs, of the history of Southeast Asia. Colonial and postcolonial periods. Representations of pluralistic cultures, diverse languages, religions, and indigenous and national identities. Indonesia, Myanmar, Philippines, Thailand, and Vietnam. All texts in English translation. [3] (HCA)

ASIA1480 - Discover Korea
Course Description

Economic transformation and rise of Korean popular culture. South Korea and US security. Korean language education via cultural and business excursions. Offered on a graded basis only. Maymester in Seoul. [3] (INT)

ASIA1680 - Inside China
Course Description

First-hand experience of China's dynamic society and expanding economy. Guided exploration of famous historical sites and contemporary institutions such as hospitals, businesses, factories, and art galleries in Beijing and Shanghai. Interviews with individuals from many different walks of life, including physicians, entrepreneurs, migrant workers, and college students. No knowledge of Chinese is required. Offered on a graded basis only. [3] (INT)

ASIA1682 - Chinese Culture through Tai Chi & Qi Gong
Course Description

Chinese culture through physical and spiritual practice of Tai Chi (Yang Style short form) and (Ba Duan Jin) Qi Gong. Concepts of traditional Chinese culture, such as the "unity of man and nature," and the complementary forces of yin and yang. [1] (No AXLE credit)

ASIA1688 - Exploring Chinese Calligraphy in China
Course Description

Practice of Chinese calligraphy in different scripts, aesthetic principles of appreciating calligraphy, development of the Chinese writing system, master calligraphers and their masterpieces, relation between calligraphy and other art forms of China, exploration of Chinese calligraphy in museums and historical sites. Maymester in China, taught in English. Offered on a graded basis only. [3] (HCA)

ASIA1780 - Health and Well-Being at the Margins of Indian Society
Course Description

Maymester in India. Holistic medicine. Marginalized communities. Treatments and social services. NGO work. [3] (INT)

ASIA1781 - Sacred Space in India
Course Description

Observation of sacred landscapes and architecture in India; examination of religious diversity, communal harmonies and tensions, expressed through the syncretic structures and the demarcation of territory. [3] (INT)

ASIA1782 - Balinese Religion and Culture
Course Description

Hindu traditions applied in domains of ordinary life, including festivals, wellness, environmental practices, and engagement with other religious communities. Language lessons in survival Bahasa Indonesian. Maymester abroad in Bali. [3] (INT)

ASIA1881W - The Body in Modern Japanese Culture
Course Description

1890s to present. Cultural and social meanings of the body in Japanese history. Fiction and film. Gender, sexuality, illness, the senses, war, and violence. [3] (INT)

ASIA2100W - Fashioning the Self: Coming of Age and Asian Modernities
Course Description

The coming-of-age novel (Bildungsroman) as a literary form in twentieth-century Asia. Travails of modernity and colonialism; the effects of crossing national, racial, and cultural boundaries; the experiences of traveling to urban centers, foreign countries, and ancestral lands. Texts from China, Indonesia, Japan, Philippines, and Vietnam. Taught in English. [3] (INT)

ASIA2210W - Hollywood Hanoi
Course Description

Cultural narratives of the Vietnam War, including novels and films. War and representation. International, minority, and antiwar perspectives on the violence and aftermath. Muhammad Ali, Werner Herzog, Jean Genet, Graham Greene, and Dinh Linh. All texts in English translation. Not open to students who have earned credit for ASIA 1111 Section 04 without permission. Total credit for this course and ASIA 1111 Section 04 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (INT)

ASIA2220 - Violence and Media in Southeast Asia
Course Description

Cold War era to contemporary. State dictatorships and police repression. The Cambodian Genocide; Indonesian mass killings; the aerial blitzkriegs of Vietnam, Laos and Cambodia; state and authoritarian violence in Thailand, Malaysia, and the Philippines. Representations of violence in the media. [3] (INT)

ASIA2230 - Sound, Performance, and the Asian City
Course Description

Listening for the sonic landscape of Asian cities from the early 20th century to the present. Urbanization, translocal popular musics, noise, music as protest, sound technologies, tourism. Historical and ethnographic perspectives on music, place, and identity. Offered on a graded basis only. [3] (INT)

ASIA2301 - Science and Society in South Asia
Course Description

History of science in South Asia from the premodern through the postcolonial. Classical Sanskrit, Arabic and Persian scholarly traditions. Science in a global context. Early modern scientific connections. The place of science in empire and the new roles of science in the postcolonial nation state. [3] (INT)

ASIA2302 - Popular Culture of South Asia
Course Description

Film, sport, music, clothing, and other contemporary popular culture artifacts. [3] (INT)

ASIA2303 - Classical South Asia in the Modern World
Course Description

Transmission, reception, and interpretation of classical South Asian cultural artifacts, such as yoga, meditation, kama sutra, ayurveda, and religious stories. Critical reflections on authenticity, adaptation, medium, and audience. [3] (HCA)

ASIA2304 - The Bhagavad Gita
Course Description

Classical Sanskrit text (in translation), historical and literary context, reception and translation. Critical concepts in South Asian religious history and methods in approaching complex primary sources. [3] (HCA).

ASIA2306 - Environment and Development in South Asia
Course Description

Interdisciplinary view of environmental and social movements in local South Asian and global contexts. Impacts of colonial legacies, social inequalities, and spirituality on environmental and development outcomes. [3] (INT)

ASIA2307 - Transnational South Asia
Course Description

Transnational processes in contemporary South Asian identity. Anti-caste and Indigenous/Tribal social movements in India; Indian Ocean histories; South Asian diasporic practices in the US; comparative histories of race and caste; contemporary nationalism and religious identity. [3] (INT)

ASIA2308 - Narratives of Disaster and Apocalypse
Course Description

Disaster and apocalyptic scenarios in popular culture as revelations of political and cultural anxieties. Role of humanity in producing ecological crisis in the Anthropocene. Not open to students who completed 3333-01 offered spring 2021. [3] (HCA)

ASIA2309W - Mountains to the Sea: Perspectives on Society, Politics, and the Environment
Course Description

How physical environments shape politics, religion, economy, cultural practices and infrastructure. Climate, soils, natural hazards, transportation, water, food, and mineral resources. Contestation over climate change and pollution. [3] (INT)

ASIA2411 - Cultural History of Korea
Course Description

Korean culture from antiquity to the present through diverse media. Origins of Korean traditions, popular beliefs, and systems of thought. Korea's transformation through encounters with the West, struggle under Japanese colonial rule, and the Korean War. Contemporary economic development, democracy movement, relations with North Korea and the United States, and sociocultural diversification in the age of globalization. [3] (INT)

ASIA2412 - Global Korean Cinema
Course Description

From the colonial period to the Korean Wave in the new millennium. Film criticism, transnational and national contexts of film production, aesthetics of auteurs and genres, and local and global receptions of Korean cinema. [3] (INT)

ASIA2413 - History of Modern Korea
Course Description

Early twentieth century to present. Critical approaches and debates. Colonial experience and national building. Wars and migration; crisis and everyday life on the Korean Peninsula. Neoliberal globalization and its critiques, and efforts for reconciliation and peace in the Asia-Pacific region. [3] (INT)

ASIA2414 - Food and Family in Korean Pop Culture
Course Description

Food as embodiment of individual, family, and collective identities in Korea and the Korean diaspora. Class, gender, ethnicity, and body politics through literature, film, TV dramas, webtoons, and pop music. Repeat credit for students who have earned credit for ASIA 3892-01 in Fall 2018. Not open to students who have earned credit for ASIA 3892-01 in Fall 2018 without permission. [3] (INT)

ASIA2415W - Blood, Sweat, and Tears in Korean Literature
Course Description

Critical overview of Korean literature through thematic lenses. Culturally informed readings of old love songs, medieval hero fantasies, modern poems, subversive novels, contemporary K-pop, and webtoons. Violence, modernity, affect, language, genres, media, diaspora, translation, and globalization. Taught in English. [3] (INT)

ASIA2416 - The Korean War through Film and Fiction
Course Description

America's "forgotten war" in Korea through diverse media: films made in the US, North Korea, and South Korea; novels and comics produced by war survivors and their descendants around the globe. [3] (INT)

ASIA2511 - Popular Culture in Modern Japan
Course Description

Popular culture in Japan from 1900 to the present. The rise of mass culture and media, song, sports, food, fashion, and popular film genres. [3] (INT)

ASIA2512 - Explorations of Japanese Animation
Course Description

Historical contexts, production techniques, visual style, narrative forms, and interpretive analyses of feature-length Japanese animated films by auteur directors from the 1980s to the present, featuring Hayao Miyazaki and three others on a rotating basis from among Satoshi Kon, Mamoru Oshii, Mamoru Hosoda, Makoto Shinkai, Hideaki Anno, and Isao Takahata. [3] (INT)

ASIA2513W - Media Monsters in Contemporary Japan
Course Description

The supernatural and the monstrous as represented in the context of mass media and consumerism in contemporary Japan. Live-action J-horror films, popular fiction, Manga, animated films, and television series. [3] (HCA)

ASIA2514W - Contemporary Japan through Film and Fiction
Course Description

Japanese social and cultural issues in literature and film since the 1980s: impact of post-bubble economy on family life; socio-economic marginality; gender inequality; generational conflict; aging; natural and human-made disasters. [3] (HCA)

ASIA2560 - Current Japan-U.S. Relations
Course Description

Similarities and differences in theory and practice in the United States and Japan on public policy issues such as trade, defense, environment, education, medical care, and racial prejudice. [3] (INT)

ASIA2605 - Romancing the Nation in Modern Chinese Literature
Course Description

From the fourteenth century to the present. Fiction, drama, and poetry. Family relations and nation-state in romantic writings. Knowledge of Chinese is not required. [3] (HCA)

ASIA2606 - Martial Tradition in Chinese Literature
Course Description

From eleventh century BCE to modern period. War, banditry, revenge, cannibalism, female knight-errant. All genres of literature, supplemented by visual material, theater, and film. Knowledge of Chinese is not required. [3] (HCA)

ASIA2607 - Self and Society in Pre-modern Chinese Literature
Course Description

From the seventeenth-century BCE to the seventeenth-century CE. Poetry, prose, fiction, and drama. Self, society, religion, gender, and print culture. Offered on a graded basis only. Serves as repeat credit for ASIA 3891 section 01 in Fall 2015. Knowledge of Chinese is not required. [3] (HCA)

ASIA2608 - Chinese Drama: 13th to 20th Centuries
Course Description

Traditional and modern Chinese drama. Text, image, and performance. Gender, religious thinking, commerce, and censorship. Offered on a graded basis only. Knowledge of Chinese not required. [3] (HCA)

ASIA2609W - Writing and Gender in Traditional China
Course Description

Pre-modern China: 1st century CE to 20th century CE. Women writers, women in family and society, gender relations, cross-dressing, and foot-binding. Poetry, prose, drama, fiction, and visual materials. Offered on a graded basis only. [3] (HCA)

ASIA2610 - Overseas Encounters: Reading the World through Students Abroad
Course Description

History of studying overseas and international students with focus on US and Asia. Literary materials from Asian and other traditions. Difficulties encountered in global context. National identities, religions, languages, home, loneliness, romantic relations. Studying and living in a foreign country. Identifying struggles and coping strategies. Serves as repeat credit for ASIA 3333, section 02 in Spring 2021. [3] (INT)

ASIA2620 - Chinese Culture Through Calligraphy
Course Description

Techniques of writing Chinese scripts using brush pen; aesthetic principles of appreciation; history and development of Chinese characters; master calligraphers and their masterpieces; relation between calligraphy and other art forms of China. [3] (HCA)

ASIA2630 - Traditional Chinese Medicine: Theories and Practices
Course Description

Historical encounters and divergences between medicine in China and in the West. Chinese medical classics, including the Inner Canon of the Yellow Emperor and early herbal manuals. The creation of Traditional Chinese Medicine in the People's Republic of China and the emergence of Chinese medicine as alternative medicine in the U.S. [3] (P)

ASIA2640 - Understanding Chinese: A Linguistic Introduction
Course Description

Basic concepts of linguistics, analyses of Chinese at different linguistic levels, sound system, word formation, sentence structures, uses in contexts. Taught in English. Knowledge of Chinese is preferred, but not required. [3] (HCA)

ASIA2650 - Translating Sunzi (Sun Tzu) The Art of War
Course Description

Commentaries on Sunzi and related Chinese military texts from Classical and Literary Chinese into English. Advanced study of Classical and Literary Chinese. Advanced study of military thought. Prerequisite: CHIN 4405. [3] (INT)

ASIA3151 - The Third World and Literature
Course Description

The history of cultural and political concepts of the Third World from 1955 to the present. Contemporary literary and cultural debates regarding models of transnationalism and processes of globalization. National literatures and cultures foundational to the Third World model. The relationship between the genre of the novel and the formation of national communities. [3] (INT)

ASIA3155 - Blackness and the Asian Century
Course Description

The solidarity movement between Africa and Asia from the turn of twentieth century into the current "Asian Century." Ongoing relevance of the color-line concept; racialized logics, processes of globalization, and the international division of labor. [3] (INT)

ASIA3333 - Special Offerings
Course Description

Topics vary. [3]

ASIA3363 - Field Investigations
Course Description

Site specific practicum in Asian Studies. Content varies according to location and disciplinary focus. May be repeated for credit more than once if there is no duplication in topic. Course requires travel to investigation site. [3] (INT)

ASIA3630 - Traditional Chinese Medicine: Encounters with Science
Course Description

Competition and dialogue between Chinese and Western medicine. Historical debates about anatomy and the reality of the body. Efforts to "scientize" Chinese medicine. Current integration of Chinese and biomedical practice in the US, use of biomedical standards to evaluate Chinese medicine's efficacy, critical evaluation of current scientific literature. Prerequisite: 2630. [3] (P)

ASIA3633 - Self-Cultivation in Ancient China
Course Description

300 BCE to 500 CE. Methods, goals, and contexts of self-cultivation in antiquity. Breathing exercises, meditation, visualization, sexual arts, sacrifice, alchemy, and other practices in their religious, cultural, and social contexts. [3] (INT)

ASIA3851 - Independent Study
Course Description

Designed primarily for majors who want to study Asian topics not regularly offered in the curriculum. Must have consent of instructor. May be repeated for credit more than once, but students may earn only up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

ASIA3852 - Independent Study
Course Description

Designed primarily for majors who want to study Asian topics not regularly offered in the curriculum. Must have consent of instructor. May be repeated for credit more than once, but students may earn only up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

ASIA3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private agencies, institutions, and programs in projects related to Asian Studies. Must be taken on a pass/fail basis and in conjunction with 3883, Internship Research. Corequisite: 3883. [1-6] (No AXLE credit)

ASIA3883 - Internship Research
Course Description

Under faculty supervision, students gain experience in any of a variety of settings, such as community, municipal, or government agencies. Must be taken on a graded basis and concurrently with 3880. Corequisite: 3880. [1-6] (No AXLE credit)

ASIA3891 - Special Topics
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3] (No AXLE credit)

ASIA3892 - Special Topics
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3] (No AXLE credit)

ASIA3980 - Junior Honors Readings
Course Description

May be repeated for credit more than once. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

ASIA4998 - Honors Research
Course Description

Research conducted in consultation with a member of the faculty or affiliated faculty of the program. Open only to senior honors majors. [1-3] (No AXLE credit)

ASIA4999 - Honors Research
Course Description

Research conducted in consultation with a member of the faculty or affiliated faculty of the program. Open only to senior honors majors. Prerequisite: 4998. [1-3] (No AXLE credit)

Asian-American Studies

ASAM1111 - First Year Writing Seminar
Course Description

Topic varies by section. [3]

ASAM2101 - Asian American History until 1924
Course Description

The Manila Galleon Trade until the Johnson-Reed Act of 1924. Labor, race, and gender at the root of Asian American history. Settler colonialism, labor migration, and Asian exclusion. Offered on a graded basis only. [3] (US)

ASAM2102 - Asian American History: From 1924 to the Present
Course Description

The Johnson-Reed Act of 1924 until the present day. Labor, empire, and migration in Asian America. Japanese incarceration, social movements in the 1960s, the model minority myth, and Asian Americans in popular culture today. Offered on a graded basis only. [3] (US)

ASAM2106 - Sociology of Asian America
Course Description

Sociological and interdisciplinary study of Asian Americans and social, cultural, and political meanings of "Asian America." Emphasis on race, ethnicity, gender, and class. Serves as repeat credit for ASIA 3891, section 03 and SOC 4961, section 01 in Fall 2021. [3] (HCA)

ASAM2107 - Social Movements in Asia and Asian America
Course Description

Asian and Asian American social movements in transnational, comparative-historical, and intersectional contexts. [3] (HCA)

ASAM3101 - Southeast Asian Americans
Course Description

Southeast Asians in the United States, ranging from pensionados in the early 20th century to refugees after U.S. wars in Southeast Asia. U.S. empire in Southeast Asia, the complexities of historical memory, and Southeast Asian American cultural production. Offered on a graded basis only. [3] (US)

ASAM3102 - Cold War Asian America
Course Description

How the Cold War (1945-1989) helped shape Asian America. Transnational approach to the history of U.S. intervention in Asia in conjunction with Asian American experiences and popular culture of the period. Offered on a graded basis only. [3] (US)

ASAM3106 - Race and the Environment in Asian America and the Pacific
Course Description

Interdisciplinary study of environmental inequality with focus on Asian Americans, Native Hawaiians, and Pacific Islanders. Transnational, comparative-historical, and intersectional contexts. [3] (HCA)

ASAM3107 - Science, Technology, and the Body in Global Asia
Course Description

Social, cultural, and political dimensions of science, technology, and the body. [3] (HCA)

Astronomy

ASTR1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

ASTR1010 - Introductory Astronomy: Stars and Galaxies
Course Description

Observed and physical properties of stars. Supernovae, neutron stars, and black holes. Our Milky Way galaxy and other galaxies. Cosmology, dark matter, dark energy, and the Big Bang. Not open to students who have earned credit for ASTR 1210 without permission. Total credit for this course and ASTR 1210 will not exceed 4 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [3] (MNS)

ASTR1010L - Introductory Nighttime Astronomy Laboratory
Course Description

Motion of the celestial sphere and apparent and real motions of celestial bodies as viewed from inside the Milky Way. Observations of meteor showers, comets, and artificial satellites. Telescopic observations of astronomical objects. Stellar spectra. Laboratory ordinarily accompanied by 1010 or 3000. Satisfies the AXLE lab course requirement when completed with 1010 or 3000. Serves as repeat credit for ASTR 1020L. Not open to students who have earned credit for ASTR 1210 without permission. Total credit for this course and ASTR 1210 will not exceed 4 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [1] (No AXLE credit)

ASTR1020L - Introductory Daytime Astronomy Laboratory
Course Description

Phases of the Moon, colors of stars, shapes and motions of galaxies, properties of exoplanets, and ages of star clusters. Telescopic observations of the Sun. Laboratory ordinarily accompanied by 1010 or 3000. Satisfies the AXLE lab course requirement when completed with 1010 or 3000. Serves as repeat credit for ASTR 1010L. Not open to students who have earned credit for ASTR 1210 without permission. Total credit for this course and ASTR 1210 will not exceed 4 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [1] (No AXLE credit)

ASTR1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)]

ASTR1210 - Introduction to Observational Astronomy
Course Description

Telescopic and naked eye observations. Light, optics, telescopes, and CCD cameras. Motions of the sky. Kepler's laws. Phases and topography of the Moon. Distances, temperatures, and brightnesses of stars. Star clusters. Dark matter. Taught entirely at Dyer Observatory using 24-inch telescope. Satisfies the AXLE lab course requirement. Not open to students who have earned credit for ASTR 1010, 1010L, or 1020L, without permission. Total credit for this course and ASTR 1010, 1010L, or 1020L, will not exceed 4 hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [4] (MNS)

ASTR2110 - The Solar System
Course Description

The sky, orbits, and gravity. Ancient astronomy. Seasons, the calendar, phases and motions of the moon, tides, and eclipses. Terrestrial planets, giant planets and their moons and rings, asteroids, comets, meteorites, and the sun. Habitable zones for planets and moons, extremophiles, and the possibility of life on other worlds. [3] (MNS)

ASTR2130 - The Trial of Galileo and its Background
Course Description

The interdependence of cosmological theories and religious teachings from the eighth century BCE to the end of the seventeenth century. Examines scientific works and religious texts, including those of Aristotle, Thomas Aquinas, Copernicus, Luther, Galileo, and Newton. [3] (P)

ASTR2150 - Celestial Navigation and Celestial Dynamics
Course Description

Sources of motion of Earth, including orbital motion, rotation, precession, and nutation. Planetary transits and eclipses. Apparent and real motions of stars. Celestial coordinate systems. Sextant observations and celestial navigation. Serves as repeat credit for ASTR 3890 in Summer 2017. [3] (MNS)

ASTR3000 - Principles of Astrophysics
Course Description

Tools and methods of astrophysics, including light and telescopes. Cosmology, the Big Bang, and the origin and evolution of matter. Galaxies, star formation, and the physics of stars, including nucleosynthesis and stellar death. Techniques for discovering and measuring properties of exoplanets. Prerequisite: either PHYS 1501, 1601, or 1911: and either MATH 1100, 1200, or 1300. [3] (MNS)

ASTR3600 - Stellar Astrophysics
Course Description

Physics of stellar structure and evolution, including nuclear energy generation, equations of state, and heat transfer by radiation and convection. Numerical stellar models. Observational aspects of stellar astrophysics. Prerequisite: either MATH 2400, 2420, or 2610; either PHYS 2255 or 3651; 3200; and either CS 1101, 1103, or 1104. [3] (MNS)

ASTR3700 - Galactic Astrophysics
Course Description

Interstellar matter and gaseous nebulae, the structure and evolution of normal galaxies, active galactic nuclei and quasars, and observational cosmology. No credit for students who have earned credit for 8040. Prerequisite: MATH 2400, 2420, or 2610; and either PHYS 2255 or 3651. Corequisite: CS 1101, 1103, or 1104. [3] (MNS)

ASTR3800 - Structure Formation in the Universe
Course Description

Observational and theoretical aspects of extragalactic astronomy. Measurements of galaxies and of the large-scale structure of the universe from galaxy surveys. Expansion history of universe; roles of dark matter and energy. Growth of density fluctuations in universe due to gravity. Cosmological N-body simulations and formation of dark matter halos. Physics of galaxy formation. Experimental probes of dark matter and energy. Prerequisite: One of PHYS 1501, 1601, or 1911; and one of PHYS 1502, 1602, or 1902; and one of MATH 2400, 2420, or 2610; and one of CS 1101, 1103, or 1104. [3] (MNS)

ASTR3850 - Undergraduate Research
Course Description

Research and scholarly investigation or directed readings in astronomy under close supervision of sponsoring faculty member. Enrollment by arrangement with sponsoring faculty member and approval of director of undergraduate studies. May be repeated for credit, for a total of no more than 10 total credit hours and for no more than 5 credit hours per semester. [1-5] (No AXLE credit)

ASTR3890 - Selected Topics
Course Description

[1-3] (No AXLE Credit)

ASTR3900 - Gravitational Astrophysics: General Relativity and Cosmology
Course Description

Introduction to Einstein's theory describing gravity as curvature of four-dimensional spacetime. Special relativity, differential geometry, tensor analysis, spacetime curvature, the Einstein Field Equations, the Schwarzschild Metric for stars and black holes, production and detection of Gravitational Waves, and the Friedmann-Robertson-Walker metric for cosmology. Prerequisite: PHYS 2275 and 2290. [3] (MNS)

ASTR4998 - Honors Research and Senior Thesis
Course Description

Independent experimental or theoretical investigations of basic problems in astronomy and astrophysics under faculty supervision, culminating in a written thesis submitted to and an oral defense presented to a departmental faculty examination committee. Required for departmental honors in Astronomy. Enrollment by arrangement with sponsoring faculty member and approval of director of undergraduate studies. May be repeated for a total of 10 credits, but students may earn only up to 6 credits per semester of enrollment. Prerequisite: major in Physics, junior or senior standing. [1-6] (No AXLE credit)

Baroque Performance

BRQ1100 - Baroque Strings
Course Description

Individual practice focused on the art and practice of Baroque violin, viola, cello, or bass, with emphasis on tone quality, technique, rhythm, interpretation, and literature. [1-2]

Biochemistry & Chemical Biology

BCB2101 - Chemical Biology Focus
Course Description

Roles of proteins, lipids, nucleic acids, and carbohydrates in human disease. Experimental techniques. Prerequisite: CHEM 2221 and BSCI 1510. [1] (No AXLE credit)

BCB3101 - Special Topics in Chemical Biology
Course Description

May be repeated for credit more than once if there is no duplication in topic. Prerequisite: CHEM 3710. [3] (MNS)

BCB3201 - Independent Laboratory Research
Course Description

Student research under the supervision of faculty associated with the Biochemistry and Chemical Biology major. Enrollment through course coordinator (after arrangement with faculty) before the end of the previous semester. Prerequisite: BSCI 1510 and CHEM 1602, consent of Biochemistry and Chemical Biology Director of Undergraduate Studies, 3.0 cumulative grade point average. May be repeated for credit more than once, but students may earn only up to 6 credits per semester of enrollment. [2-6] (No AXLE credit)

BCB3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline can gain scientific research experience in a broad range of public or private institutions or government laboratories. Credit hours are based upon actual work performed at the internship site. A minimum of 1 credit hour in background readings and research must be completed in BCB 3881 concurrently with, and regardless of, the number of hours earned in BCB 3880. A substantial research paper must be submitted at the end of the semester during which the internship is completed. These credit hours may NOT count toward the minimum credit hours required for the biochemistry & chemical biology major. Normally a 3.0 grade point average, 6 hours of prior coursework in BCB major, and prior approval of a specific plan of work by the director of undergraduate studies in Biochemistry & Chemical Biology are required. Offered on a Pass/ Fail basis only and must be taken concurrently with 3881. Corequisite: 3881. Variable credit. [1-9] (No AXLE credit)

BCB3881 - Internship Readings and Research
Course Description

Under faculty supervision, students from any discipline can gain scientific research experience in a broad range of public or private institutions or government laboratories. Credit hours are based upon readings or research supervised by BCB faculty to lend some intellectual foundation to the internship experience. A minimum of 1 credit hour in background readings and research must be completed in BCB 3881 concurrently with, and regardless of, the number of credit hours earned in BCB 3880. A substantial research paper must be submitted at the end of the semester during which the internship is completed. These credit hours may not count toward the minimum credit hours required for the Biochemistry & Chemical Biology major. Normally a 3.0 grade point average, 6 hours of prior coursework in BCB, and prior approval of a specific plan of work by the director of undergraduate studies in Biochemistry & Chemical Biology are required. Offered on a graded basis only and must be taken concurrently with 3880. Corequisite: 3880. Variable credit. [1-6] (No AXLE credit)

BCB4320 - Advanced Chemical Biology
Course Description

(Also listed as CPBP 8320 Foundations in Chemical Biology) Overviews and in-depth case studies on the breadth of chemical biology. Importance of chemical biology in advancing biological sciences. Offered on a graded basis only. Prerequisite: CHEM 3710 [3] (MNS)

BCB4965 - Advanced Integrated Laboratory
Course Description

Chemical and biomolecular analysis, separation, and spectroscopy. Chemical synthesis. Experimental design, computational methods. Offered on a graded basis only. Limited to BCB senior majors. Prerequisite or Co-requisite: BSCI 2520 and CHEM 3710. [3] (MNS)

BCB4966 - Advanced Integrated Laboratory
Course Description

Continuation of 4965. Directed research. Offered on a graded basis only. Limited to senior BCB majors. Prerequisite: 4965. [3] (MNS)

BCB4999 - Honors Research
Course Description

Original supervised research. Consent of DUS required. Only open to BCB majors. May be repeated for credit. Prerequisite: 3201. [3-6] (No AXLE credit)

Biological Sciences

BSCI1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

BSCI1100 - Biology Today
Course Description

Broad coverage of the biological sciences presenting evolution as the unifying concept. Particular emphasis on basic biological processes in cells and the relationships/interactions between organisms and their environment. Topics include cell structure and function, genetics and inheritance, evolution and diversity, populations, communities and ecosystems, and topics related to biology and society. Not open to students who have earned credit for BSCI 1510 or 1511 without permission. Total credit for this course and BSCI 1510 or 1511 will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (MNS)

BSCI1100L - Biology Today Laboratory
Course Description

Laboratory investigations of the genetics, physiology, and ecology of plants and animals. One three-hour laboratory per week to accompany 1100. Not open to students who have earned credit for BSCI 1510L, 1511L, or 1512L without permission. Total credit for this course and BSCI 1510L or 1511L will not exceed 1 credit hours; total credit for this course and BSCI 1512L will not exceed 2 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Satisfies the AXLE lab course requirement when completed with 1100. Co- or pre-requisite: 1100. [1] (No AXLE credit)

BSCI1103 - Green Earth: The Biodiversity and Evolution of Plants
Course Description

Evolution of biodiversity from the Cambrian period through today. Theories and challenges of its conservation. Case studies drawn from Hawaii, Madagascar and Australia. Not intended for students planning to major in biological sciences. Not open to students who have earned credit for 1510 or 1511 without permission. Total credit for this course and 1510 or 1511 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (MNS)

BSCI1103L - Green Earth Laboratory: The Biodiversity and Evolution of Land Plants
Course Description

Not open to students who have earned credit for 1510L, 1511L, or 1512L without permission. Total credit for this course and 1510L or 1511L will not exceed 1 credit hour; total credit for this course and 1512L will not exceed 2 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Corequisite: 1103. Satisfies the AXLE lab course requirement when completed with 1103. [1]

BSCI1105 - Human Biology
Course Description

Recent advances in genetics, reproduction, and biotechnology. Social, legal, and ethical implications. Not intended for students majoring in Biological Sciences. Not open to students who have earned credit for BSCI 1510, 1510L, 1511, 1511L, or 1512L without permission. Total credit for this course and BSCI 1510, 1510L, 1511, or 1511L will not exceed 4 credit hours; total credit for this course and BSCI 1512L will not exceed 5 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (MNS)

BSCI1105L - Human Biology Laboratory
Course Description

Satisfies the AXLE lab requirement when completed with 1105. Not intended for students majoring in Biological Sciences. Not open to students who have earned credit for BSCI 1510, 1510L, 1511, 1511L, or 1512L without permission. Total credit for BSCI 1105/1105L and BSCI 1510, 1510L, 1511, or 1511L will not exceed 4 credit hours; total credit for this course and BSCI 1512L will not exceed 5 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Co-requisite: BSCI 1105. [1] (No AXLE credit)

BSCI1110 - Introduction to Microbiology
Course Description

Structure, metabolism, genetics, and ecology of microorganisms. Emphasis will be on the impacts microorganisms have on human health and society. Not intended for students majoring in Biological Sciences. Not open to students who have earned credit for BSCI 2150. [3] (MNS)

BSCI1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

BSCI1400 - Science Education Pedagogy Seminar
Course Description

This pedagogy seminar accompanies a core course in the College of Arts & Sciences and examines the process of teaching and learning of that course content. Students enrolled in the core course lecture may elect to participate in this accompanying pedagogy seminar. This optional seminar will be team-taught by the core course instructor and an education faculty member. [2]

BSCI1510 - Introduction to Biological Sciences
Course Description

An integrative approach to the science of life for science and engineering students. Macromolecular structure and function. Cell structure, reproduction, metabolism, and energy production. Genomes, replication, gene structure, RNA, and protein synthesis. Not open to students who have earned credit for BSCI 1100, 1103, or 1105 without permission. Total credit for this course and BSCI 1100 or 1103 will not exceed 3 credit hours; total credit for this course and BSCI 1105 will not exceed 4 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: CHEM 1601. [3] (MNS)

BSCI1510L - Biological Sciences Laboratory
Course Description

Laboratory to accompany 1510. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1510. Not open to students who have earned credit for BSCI 1100L, 1103L, or 1105 without permission. Total credit for this course and BSCI 1100L or 1103L will not exceed 1 credit hour; total credit for this course and BSCI 1105 will not exceed 4 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: 1510. [1] (No AXLE credit)

BSCI1511 - Introduction to Biological Sciences
Course Description

Continuation of 1510. Cell communication. Physiology, organ function and development. Mendelian and population genetics. Evolution, ecology, and speciation. Populations, ecosystems, and conservation biology. Not open to students who have earned credit for BSCI 1100, 1103, or 1105 without permission. Total credit for this course and BSCI 1100 or 1103 will not exceed 3 credit hours; total credit for this course and BSCI 1105 will not exceed 4 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1510. [3] (MNS)

BSCI1511L - Biological Sciences Laboratory
Course Description

Laboratory to accompany 1511. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1511. Not open to students who have earned credit for BSCI 1100L, 1103L, 1105, or 1512L without permission. Total credit for this course and BSCI 1100L or 1103L will not exceed 1 hour; total credit for this course and BSCI 1105 will not exceed 4 hours; total credit for this course and BSCI 1512L will not exceed 2 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: 1511. [1] (No AXLE credit)

BSCI1512L - Biological Sciences Laboratory
Course Description

Alternative to 1511L. Directed research projects with emphasis on experimental design and analysis. Satisfies the AXLE lab course requirement when completed with 1511. Offered on a graded basis only. Not open to students who have earned credit for BSCI 1100L, 1105, or 1511L without permission. Total credit for this course and BSCI 1100L or 1511L will not exceed 2 hours; total credit for this course and BSCI 1105 will not exceed 5 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: 1511. Prerequisite: 1510L. [2] (No AXLE credit)

BSCI2101 - Human Anatomy and Physiology I
Course Description

(Previously listed as MHS 3101, NURS 3101) Structure and function of the human organism. Integration of the gross anatomical structures and organ systems with microscopic structure, physiological function, and homeostatic mechanisms. Clinical relevance of selected topics. Not open to students who have completed NURS 3101 or MHS 3101. Prerequisite: 1510; Prerequisite or corequisite: 1511. [4] (MNS)

BSCI2150 - General Microbiology
Course Description

Genetics, cell biology, physiology, and diversity of microorganisms; their role in research and impact on human health and the environment. Prerequisite: 1511. No credit for students who have earned credit for BSCI 3234. [3] (MNS)

BSCI2150L - General Microbiology Lab
Course Description

Laboratory to accompany Introduction to Microbiology (1110) or General Microbiology (2150). Two laboratory sessions per week. Satisfies the AXLE lab course requirement when completed with 1110 or 2150. Prerequisite or corequisite: 1110 or 2150 or 3234. [1]

BSCI2201 - Introduction to Cell Biology
Course Description

Structure and function of cells, subcellular organelles, and macromolecules. Fundamentals of organelle function, membrane transport, energy production and utilization, cell motility, cell division, intracellular transport and mechanisms of signal transduction. Prerequisite: 1510. [3] (MNS)

BSCI2201L - Cell Biology Laboratory
Course Description

One three-hour laboratory and discussion period per week. Satisfies the AXLE lab course requirement when completed with 2201. Prerequisite or corequisite: 2201. [1] (No AXLE credit)

BSCI2205 - Evolution
Course Description

Evolutionary theory, with emphasis on evolutionary mechanisms. Microevolutionary processes of adaptation and speciation and macro-evolutionary patterns. Evidence from genetics, ecology, molecular biology, and paleontology in the historical context of the neo-Darwinian synthesis. No credit for graduate students in Biological Sciences. Prerequisite: 1511. [3] (MNS)

BSCI2210 - Principles of Genetics
Course Description

Basic principles and mechanisms of inheritance discussed and related to other biological phenomena and problems. Prerequisite: 1511. [3] (MNS)

BSCI2210L - Genetics Laboratory
Course Description

One three-hour laboratory and discussion period per week. Satisfies the AXLE lab course requirement when completed with 2210. Prerequisite or corequisite: 2210. [1] (No AXLE credit)

BSCI2218 - Introduction to Plant Biology
Course Description

Diversity of plants within the framework of their evolution and environmental adaptations. Biomes from the tropical rain forest to the Vanderbilt arboretum. Three lectures and one laboratory per week. Prerequisite: 1511. [3] (MNS)

BSCI2218L - Plant Biology Lab
Course Description

Laboratory to accompany 2218. One three-hour laboratory per week. Pre- or co-requisite: BSCI 2218. [1]

BSCI2219 - Introduction to Zoology
Course Description

A structural and functional study of the major animal groups. The problems presented to animals by their environments, and the anatomical and physiological mechanisms by which they adapt. Three lectures and one laboratory period per week. Prerequisite: 1511. [4] (MNS)

BSCI2238 - Ecology
Course Description

Population biology, evolutionary ecology, community structure, with emphasis on species interactions, including competition, predation, and symbiosis. Prerequisite: 1511. [3] (MNS)

BSCI2238L - Ecology Lab
Course Description

One three-hour laboratory and discussion period or field trip per week. Satisfies the AXLE lab course requirement when completed with 2238. Prerequisite or corequisite: 2238. [1] (No AXLE credit)

BSCI2520 - Biochemistry
Course Description

Structures and mechanisms of action of biological molecules, proteins, nucleic acids, lipids, and polysaccharides. Enzymology. Carbohydrate metabolism. Prerequisite: Either 1510 or CHBE 2150; and either CHEM 2211 or 2221. [3] (MNS)

BSCI3101 - Human Anatomy and Physiology II
Course Description

(Previously listed as MHS 3102, NURS 3102) Continuation of 2101. Structure and function of the human organism. Integration of the gross anatomical structures and organ systems with microscopic structure, physiological function, and homeostatic mechanisms. Clinical relevance of selected topics. Not open to students who have completed NURS 3102 or MHS 3102. Prerequisite: 2101. [4] (MNS)

BSCI3226 - Immunology
Course Description

The molecular and cellular basis of immunity. Emphasis on molecular structure, the genetic origin of diversity in B-cell and T-cell receptors, antigen presentation, and the cellular interactions leading to the immune response. Tolerance, tumor and transplantation immunity, autoimmune and immunodeficiency diseases, and allergy. Prerequisite: 2201 or 2210. [3] (MNS)

BSCI3228 - Biodiversity: Great Barrier Reef and Rainforests of Australia
Course Description

May session; two weeks on campus followed by two weeks in Australia. Origins. Threats to, and conservation of, populations and species. Serves as repeat credit for BSCI 3890 Section 01 Summer 2016. [3] (MNS)

BSCI3229 - Instruction in Scientific Rigor and Reproducibility
Course Description

Fundamentals of proficient research: methodical experimental design, analytical assessment of literature, proper interpretation of data, model development, use of 'MATLAB' for analysis. Covers implicit bias, scientific transparency, data and material sharing, sample blinding, randomization, criteria for sample exclusion, plagiarism, conflicts of interest, and statistical methods. Prerequisite: 1511. [3] (MNS)

BSCI3230 - Biological Clocks
Course Description

Study of innate mechanisms for measurement of time in living organisms. Emphasis on the functional significance and physiological basis of biological clocks in animals and humans. Topics include circadian rhythms, time-compensated celestial navigation, photoperiodism, and the role of biological clocks in human behavior. Prerequisite: 1511. [3] (MNS)

BSCI3231 - Paleobiology
Course Description

Macroevolutionary processes as observed through the fossil record. Inference of evolutionary relationships, physiology, reproduction, behavior, and ecology. Fundamentals of paleobiology, paleoecology, paleoclimates, macroecology, biogeography, geology, geochemistry, anthropology, and conservation paleobiology. Effects of climate change and human impacts, in deep-time. Prerequisite: 1511. [3] (MNS)

BSCI3232 - Biodiversity, Climate Change and Our Health
Course Description

Impacts of climate change on biological and ecological systems from the Paleozoic era to today. Inter-play of earth's systems, climate, and biological innovations. Effects on our natural resources, and consequences for our health. Prerequisite: 1511. [3] (MNS)

BSCI3233 - Conservation Biology
Course Description

Ecological, evolutionary, social, and economic aspects of biodiversity loss and ecosystem disruption due to human activities. Climate change, habitat fragmentation, species overexploitation, and invasive species. Sustainable development, habitat restoration, and species reintroduction. Prerequisite: 1511. [3] (MNS)

BSCI3234 - Microbial Ecology and Evolution
Course Description

Microorganisms, including bacteria, archaea, eukaryotes, viruses, and their mobile genetic elements. Origins, universality, and diversity of microbial life. Modes of genome evolution, symbioses between microbes and hosts, biotechnology, applications, and human microbiome. Prerequisite: 2150. [3] (MNS)

BSCI3236 - Parasitology
Course Description

Biology and epidemiology of eukaryotic parasites of medical and veterinary significance. Diagnosis, treatment, and control of parasitic protists, platyhelminthes, nematodes, and arthropods. Impact on global health. Prerequisite: 1511. [3] (MNS)

BSCI3239 - Evolution of Behavior
Course Description

Theoretical and empirical research on the evolution of behavior. Evolutionary approaches to the study of animal behavior, including the role of behavior in foraging, competition, predator-prey interactions, and sociality. Behavioral adaptations and their roles in sexual selection, mating systems, and animal communication. Prerequisite: 1511 and 2205. [3] (MNS)

BSCI3245 - Biology of Cancer
Course Description

Application of cell biology, molecular biology, and genetics to the study of cancer. Tumorigenesis; cellular oncogenes; growth factor signaling; tumor suppressor genes; apoptosis; metastasis and invasion. Prerequisite: 1511. [3] (MNS)

BSCI3247 - Molecular Evolution
Course Description

The theory of evolution at the molecular level. The evolution of DNA and RNA sequences, proteins, and genome structures will be studied using models from population genetics and comparative approaches. Molecular clocks, the evolution of gene regulation and globin genes, molecular phylogeny, and human evolution. Prerequisite: 2210 and 2205. [3] (MNS)

BSCI3252 - Cellular Neurobiology
Course Description

Structure and function of nerve cells. Emphasis on electrical excitability, synaptic transmission, and sensory transduction. Cellular mechanisms underlying simple behaviors, sensory information processing, and learning and memory. Prerequisite: 1511. [3] (MNS)

BSCI3254 - Neurobiology of Behavior
Course Description

Nerve cell interactions in neuronal networks of the central nervous system of animals and their impact for regulating behavior. Sensory systems, sensory-motor integration, central processing of information, neuronal-hormonal interactions; and brain anatomy and organization in invertebrates and vertebrates. Prerequisite: BSCI 1511 or NSC 2201. [3] (MNS)

BSCI3256 - Molecules of the Brain
Course Description

Molecules of neural wiring, involving cell identity, pathfinding, synaptogenesis. Molecules of nerve cell communication, with relationship to drugs of addiction and abuse. Molecules of nervous system plasticity, and the mechanistic bases of learning and memory. Relation of these mechanisms to causes of human neurological diseases. Prerequisite: 1511. [3] (MNS)

BSCI3258 - Vertebrate Physiology
Course Description

Fundamental mechanisms of the major vertebrate physiological systems with an emphasis on humans. Special physiological adaptations of vertebrates to their environment (respiration of aquatic animals, birds, and deep diving mammals; salt balance in fresh and saltwater environments; altitude adaptation). Prerequisite: 2201 or 2520. [3] (MNS)

BSCI3260 - Vertebrate Biology
Course Description

Comprehensive overview of the vertebrates. Morphology, physiology and behaviors; adaptations to specific environments, and the ecology, distribution and conservation of select groups. Key transformations leading to vertebrate diversity. Evolutionary history and relationships. No credit for students who earned credit for BSCI 3890 section 1 offered spring 2016 or spring 2017. Prerequisite: BSCI 1511. [3] (MNS)

BSCI3270 - Statistical Methods in Biology
Course Description

An introduction to statistical methods used in the analysis of biological experiments, including the application of computer software packages. Emphasis on testing of hypotheses and experimental design. Topics include descriptive statistics, analysis of variance, regression, correlation, contingency analysis, and the testing of methods for sampling natural populations. Prerequisite: 1511. [3] (MNS)

BSCI3272 - Genome Science
Course Description

Aims and importance of the science. Retrieval of genome data from public databases; experimental and computational methods used in analysis of genome data and their annotation. Functional aspects of genomics, transcriptomics, and proteomics; use of phylogenetics and population genomics to infer evolutionary relationships and mechanisms of genome evolution. Prerequisites: 1511. [3] (MNS)

BSCI3333 - Special Offering
Course Description

Topics vary by section and instructor. May be repeated for credit; students may register for more than one section of this course in the same semester. Not eligible toward the major or minor. [3] (MNS)

BSCI3850 - Independent Reading
Course Description

Reading and discussion of research papers with a member of the faculty. Prerequisite: consent of Biological Sciences 3850 coordinator before the end of the previous semester. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1; maximum of 2 credits total for all semesters of BSCI 3850] (No AXLE credit)

BSCI3860 - Introduction to Research
Course Description

Work in the laboratory of a member of the Biological Sciences faculty. Term paper required. Consent of course coordinator and enrollment by arrangement before the end of the previous semester is required. Prerequisite: 1510. Prerequisite or corequisite: 1511. [1] (No AXLE credit)

BSCI3861 - Directed Laboratory Research
Course Description

Directed student research on a project conceived by a member of the Biological Sciences faculty. Enrollment by arrangement before the end of the previous semester. May be taken only once, and participants ordinarily expected to have overall grade point average of B or better. Offered on a graded basis only. Prerequisite: 1511, one intermediate BSCI course appropriate to the major or 3860, and consent of Biological Sciences 3861 coordinator. [2-4] (No AXLE credit)

BSCI3865 - Field Investigations
Course Description

Content varies according to location and disciplinary focus. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3] (MNS)

BSCI3890 - Special Topics in Biological Sciences
Course Description

Topics vary. May be repeated for credit more than once by permission of the director of undergraduate studies. Students may enroll in more than one section of this course each semester. Prerequisite: 1511. [3] (MNS)

BSCI3961 - Independent Laboratory Research
Course Description

Original student research on a defined problem in Biological Sciences and under the supervision of Biological Sciences faculty. Some independence in the design and execution of the problem. Enrollment by arrangement before the end of the previous semester. Prerequisite: 3861, consent of Biological Sciences 3961 coordinator, cumulative grade point average of B. May be repeated for credit more than once, but students may earn only up to 6 credits per semester of enrollment. [2-6] (No AXLE credit)

BSCI3965 - Undergraduate Seminar
Course Description

Discussions and papers based on readings in research journals. Topics vary. Prerequisite: fulfillment of the intermediate course requirements for the major. May be repeated for credit more than once if there is no duplication in topic, but only two hours may count toward the major. Students may enroll in more than one section of this course each semester. [2] (No AXLE credit)

BSCI4243 - Principles of Human Disease
Course Description

Current understanding of diseases. Genetic, molecular, and cellular biological basis of disease. Connection between basic sciences and disease insights. Focus on obesity, aging, cancer, neurodegeneration, infections, and biomedical technology. Prerequisite: 2201 or 2210 or 2520. [3] (MNS)

BSCI4265 - Biochemistry II
Course Description

Mechanisms and interactions of biological molecules involved in maintenance of genetic information and cellular homeostasis. Prerequisite: 2520. [3] (MNS)

BSCI4266 - Advanced Molecular Genetics
Course Description

Principles of classical and molecular genetic analysis: mutation and recombination, mapping, and the application of genetic methodology to the study of complex systems. Special emphasis on modern genomic approaches. Prerequisite: 2210. [3] (MNS)

BSCI4274 - Proteins
Course Description

Molecular structures and biological functions of proteins. Underlying chemical and physical properties. Structural motifs and topology; folding and dynamics; enzyme catalysis; protein-DNA interactions. Structure-based drug design; protein symmetry; supramolecular protein machines. Chemical and spectroscopic methods to probe protein structure and behavior in solution. Prerequisite: 2520. [3] (MNS)

BSCI4275 - Molecular Biology
Course Description

Mechanisms underlying the maintenance and expression of our genomes. DNA replication, DNA repair, transcription, and RNA metabolism. Students who have completed 4265 require instructor approval to register. Prerequisite: 2520. [3] (MNS)

BSCI4285 - Membrane Biochemistry
Course Description

Molecular mechanisms and interactions of biological molecules in membrane biochemistry and maintenance of cellular homeostasis. Membrane transport and trafficking; lipids; signaling; protein translocation and quality control. Students who have completed 4265 require instructor approval to register. Prerequisite: 2520. [3] (MNS)

BSCI4820 - Paleoecological Methods
Course Description

Tools used to interpret past environments and climates, including plant microfossils, pollen and phytoliths, vertebrate morphology, and dental microwear and mesowear. Geochemical tools such as stable isotopes and rare earth elements. Integrating methods for paleontological and anthropological studies, including the use of databases and meta-analyses. Readings from primary sources. Prerequisite: BSCI 1511 or EES 1030 or EES 1081 or EES 1510. [3] (MNS)

BSCI4999 - Honors Research
Course Description

Open only to majors in the Honors Program. May be repeated for credit more than once, but students may earn only up to 6 credits per semester of enrollment. [4-6] (No AXLE credit)

Biomedical Engineering

BME1015 - Innovations in Biomedical Engineering
Course Description

Review of areas within the field of BME. Topics include current research and industry trends in imaging, regenerative medicine, biophotonics, medical devices, technology and entrepreneurship, and low resource engineering. Open only to first-year and transfer students. Students in the School of Engineering receive open elective credit for BME 1015. SPRING. [1]

BME2100 - Biomechanics
Course Description

Structure and mechanics of the musculoskeletal system and the properties and strength of biological materials. Application of Newtonian mechanics, statics, and strength of materials to bone, muscle, tendon, other biological material, and medical devices. Credit offered for only one of BME 2100 or CE 2200. Prerequisite: PHYS 1601, MATH 1301, CS 1101 or 1103 or 1104. [3]

BME2210 - Biomaterial Manipulation
Course Description

Design and characterization of biomaterials. Assessment of tissue engineering scaffolds and nanoparticles. Manipulation of cell growth and expression. Application of mechanics and materials principles to medical and consumer products. Laboratory exercises in tissue culture, microscopy, mechanical testing, biochemical assays, and computer modeling. Prerequisite: BME 2100, BSCI 1510/1510L. Corequisite: BME 2200. SPRING. [3]

BME2301 - Systems Physiology I
Course Description

(Previously BME 2001) Quantitative physiology from the engineering point of view. Descriptive physiology of several organ systems (nervous, musculoskeletal, cardiovascular, blood). Mathematical modeling and computer simulation of organ systems and physiologic control mechanisms. No credit for students who have earned credit for BME 3100. Prerequisite: CS 1101 or 1103 or 1104. Corequisite: BSCI 1510, PHYS 1602. [3]

BME2302 - Systems Physiology II
Course Description

(Previously BME 2002) Quantitative physiology from the engineering point of view. Descriptive physiology of several organ systems (immune, endocrine, respiratory, renal, gastrointestinal, reproductive). Mathematical modeling and computer simulation of organ systems and physiologic control mechanisms. No credit for students who have earned credit for BME 3101. Prerequisite: CS 1101 or 1103 or 1104; PHYS 1601. Corequisite: BSCI 1510, PHYS 1602. [3]

BME2400 - Quantitative Methods I: Statistical Analysis
Course Description

Application of modern computing methods to the parametric and nonparametric statistical analysis of biomedical data. Probability, sampling, estimation, analysis of variance, single and multivariable regression, and the principles of hypothesis testing, experimental design and clinical trials are emphasized. No credit for students who have earned credit for BME 3200. Prerequisite: MATH 2300. Corequisite: CS 1101 or 1103 or 1104. [3]

BME2860 - Introduction to Undergraduate Research
Course Description

Introduction to Undergraduate Research. Introduction to research, either experimental or theoretical in nature or a combination of both, under the supervision of a biomedical engineering faculty member or another faculty member approved by the course director. Students in the School of Engineering may only receive open elective credit for BME 2860. Prerequisites: Consent of course director (see BME undergraduate website for registration details). FALL, SPRING. [1-3]

BME2900W - Biomedical Engineering Lab I
Course Description

Introductory laboratory with guided reports. Experiment topics may cover systems physiology, biomechanics, and biomaterials. Emphasis on methods, instrumentation, and equipment used in biomedical engineering. One three-hour laboratory per week. No credit for students who have earned credit for BME 4900W. Prerequisite: CS 1101 or 1103 or 1104. Corequisite: BME 2301. [1]

BME3000 - Physiological Transport Phenomena
Course Description

Mechanics of fluids, heat transfer, and mass transfer in living systems. Basic theories of transport phenomena, applications to mammalian and cellular physiology and the design of medical devices. Prerequisite: BME 2100; MATH 2400 or 2420. [3]

BME3301 - Biomedical Instrumentation I
Course Description

Electronic circuits for measuring and processing physiological signals, analog front-end design, analog-to-digital conversion and digital signal processing. Physics and applications of clinically relevant biosensors. Laboratory exercises focus on construction, verification, and validation of biomedical instruments. Three lectures and one three-hour laboratory. No credit for students who have earned credit for BME 3300. Prerequisite: EECE 2112. Corequisite: BME 3400. [4]

BME3302 - Biomedical Instrumentation II
Course Description

Systems-level approach to the design of devices that monitor clinically-relevant physiological functions and variables, driven by the needs of specific pathophysiological conditions. Laboratory exercises stress instrumentation design and integration of multiple modalities into an instrumentation platform. Three lectures and one three-hour laboratory. No credit for students who have earned credit for BME 3300. Prerequisite: BME 3301 or both EECE 2213 and 2213L. [4]

BME3400 - Quantitative Methods II: Signals and Numerical Analysis
Course Description

Quantitative analysis and computational methods for biomedical engineering applications. Signal and image processing, numerical analysis, and linear and nonlinear models. No credit for students who have earned credit for BME 3300. Prerequisite: CS 1101 or 1103 or 1104; MATH 2400. Corequisite: BME 2400. [3]

BME3500 - Biomedical Materials: Structure-Property Relationships and Applications
Course Description

Structure-property relationships in both natural and synthetic, hard and soft materials. Bio-inspired materials design, the role of self-assembly in achieving highly ordered structures, material design and properties for emerging biomedical applications, factors influencing biocompatibility, performance of biomaterials in both soft and hard tissues, and biological response to implants. No credit for students who have earned credit for BME 2200. Prerequisite: CHEM 1602, PHYS 1601. [3]

BME3700 - Bioengineering Failure - Mechanisms and Ramifications
Course Description

Mechanisms of failure for drugs and devices analyzed through case studies. Bioengineering practice through the lens of FDA approval, ethics, and decision theory. Students will create a biotechnology case study for presentation to the class for assessment. Prerequisite: BME 2100, BME 3000. SPRING. [3].

BME3750 - Low Resource Bioengineering
Course Description

Needs associated with low-resource settings, particularly regarding global health. Application of engineering skills to design solutions to meet current needs. Includes a SOLIDWORKS project. FALL. [3]

BME3800 - 3D Computer Drafting in BME Design
Course Description

Development of 3D visualization skills to transform ideas into parts, engineering drawings, and assemblies in SOLIDWORKS. Projects emphasize applications in biomedical engineering. Lectures include interactive in-class activities. [3]

BME3860 - Undergraduate Research
Course Description

Independent research, either experimental or theoretical in nature or a combination of both, under the supervision of a biomedical engineering faculty member or another faculty member approved by the course director. The class meets one hour per week to discuss research design, responsible conduct of research, laboratory documentation, literature review, and scientific writing. Prerequisite: Junior standing, consent of course director (see BME undergraduate website for registration details). [2-3; maximum of 6 hours total for all semesters of BME 3860 and 3861]

BME3861 - Undergraduate Research
Course Description

A continuation of the research in 3860 or research in a different area of biomedical engineering. Prerequisite: Consent of course director. [1-3 each semester; maximum of 6 hours total for all semesters of BME 3860 and 3861.]

BME3890 - Special Topics
Course Description

[3]

BME3891 - Special Topics
Course Description

[3]

BME3892 - Special Topics
Course Description

[3]

BME3893 - Special Topics
Course Description

[3]

BME3900W - Biomedical Engineering Lab II
Course Description

Intermediate laboratory with oral and written reports. Experiment topics may include thermodynamics, biological transport, signal analysis, biological control, and biological imaging. Emphasis on data analysis and communication. One three-hour laboratory per week. No credit for students who have earned credit for BME 4900W. Prerequisite: BME 2900W. Corequisite: BME 2100, BME 2302. [1]

BME4030 - Cell Mechanics and Mechanobiology
Course Description

Quantitative understanding of the way cells detect, modify, and respond to physical aspects of the cell environment. Foundational principles of cell mechanics. State-of-the-art experimental practices of cell mechanics and mechanobiology. Prerequisite: BME 2100, BME 3000. SPRING. [3]

BME4100 - Lasers in Surgery and Medicine
Course Description

Fundamentals of lasers, light-tissue interaction, problem-based design of optical instrumentation. Applications in laser surgery, disease detection, and surgical guidance. Includes hands-on experiences. Prerequisite: PHYS 1602. FALL. [3]

BME4200 - Principles and Applications of BioMicroElectroMechanical Systems (BioMEMS)
Course Description

The principles, design, fabrication and application of micro- and nano-devices to instrument and control biological molecules, living cells, and small organisms, with a strong emphasis on development of microfabricated systems and micro- and nano-biosensors. Students will lead discussions from the research literature. Graduate students will prepare a research proposal or fabricate a functioning BioMEMS device. FALL. [3]

BME4250 - Mobile Application Design for Healthcare
Course Description

Development of mobile platform applications for healthcare. Motivation and role of telemedicine in US and global healthcare systems. Covers UX / UI design principles for mobile application development. Includes a team-based, structured project. Prerequisite: CS 1101, 1103, or 1104; junior standing. FALL of alternating years. [3]

BME4320 - Engineering Approaches to Cancer
Course Description

Basic concepts of cancer including somatic evolution, models of tumorigenesis, growth dynamics, drug resistance, and evolutionary dynamics. Computational methods will be used to model and predict these behaviors, and classic and current scientific literature will be discussed, and used to help define group projects. Course project includes a mid-semester group presentation, progress reports, and a final report. Corequisite: BME 3000. FALL. [3]

BME4340 - Drug Delivery
Course Description

Advanced course on the design, synthesis, characterization, testing, and disease treatment application of drug delivery systems. Focus on synthetic biomaterials, especially polymeric materials. A final written project is required. Prerequisite: BME 3500. [3]

BME4400 - Foundations of Medical Imaging
Course Description

Physics and engineering of image formation by different modalities used for medical applications. Concepts common to different imaging modalities and limits of physical phenomena. Mathematical concepts of image formation and analysis; techniques for recording images using X-rays (including CT), ultrasound, magnetic resonance, and radioisotopes (including SPECT and PET). Methods of evaluating image quality. Prerequisite: CS 1100 or 1101 or 1103 or 1104; PHYS 1602; MATH 2400. SPRING. [3]

BME4420 - Quantitative and Functional Imaging
Course Description

Quantitative analysis of non-invasive imaging techniques to assess the structure and function of tissues in the body. Applications of computed tomography, positron emission tomography, ultrasound, and magnetic resonance imaging to tissue characterization. Measurement of lesion volume, cardiac output, organ perfusion, brain function, and receptor density. Prerequisite: CS 1101 or 1103 or 1104; PHYS 1602; MATH 2400. FALL [3]

BME4430 - Medical Imaging Instrumentation
Course Description

Laboratory course on medical imaging transducers, electronics and systems design. Functioning tabletop optical computed tomography, ultrasound and magnetic resonance systems are built and characterized. Corequisite: BME 3302. SPRING. [3]

BME4460 - Ultrasound Imaging
Course Description

Physics and engineering of ultrasonic imaging. Principles of bioacoustics and mechanical wave phenomena, ultrasonic image formation including both B-Mode and Doppler. Mathematical aspects of image formation and analysis including linear systems and Fourier analysis. Prerequisite: BME 2400 or 3400. FALL. [3].

BME4500 - Nanobiotechnology
Course Description

Synthesis and characterization of nanostructured materials for use in living systems. Clinical applications of nanoscale biosensors. Methods for single molecule detection in biological specimens. Quantitative structure/function assessment of nanostructures in living systems. Prerequisite: BSCI 1510; BME 3000 or CHBE 3300 or ME 3224. SPRING. [3]

BME4530 - Synthetic Biology and Cell Design
Course Description

Principles used to interrogate and encode cell behaviors. Exploration of modules from diverse domains of life that can be assembled for bioengineering applications, including adoptive cell therapy and regenerative medicine. Prerequisite: BSCI 1510 or ChBE 2150. SPRING. [3]

BME4550 - Drug Development & Biotechnology: Pharmaceutical Engineering
Course Description

Biology and bioengineering as a basis for successfully launching new high-tech bioventures. Overview of biotechnology in modern drug discovery and development, with treatment of business aspects of pharmaceutical innovation. Prerequisite: BME 2301, BME 2302, BME 2400. SPRING. [3].

BME4901W - Biomedical Engineering Lab III
Course Description

Advanced laboratory with comprehensive written reports. Students design experiments building on laboratory exercises conducted in BME 2900W and 3900W. Emphasis on experimental design, use of controls, and interpretation of data. One three-hour laboratory per week. No credit for students who have earned credit for BME 4900W. Prerequisite: BME 2400, 3900W. [1] (Not offered until 2021-2022.)

BME4950 - Design of Biomedical Engineering Devices and Systems I
Course Description

Integration of the engineering and life science backgrounds of senior biomedical engineering students through the presentation of design principles for medical devices and systems. Design principles and case examples for biomedical electronics, mechanical, chemical, and computing systems are presented. A full-semester design project is required. Evaluation is conducted through periodic oral and written presentations, and through a final written and poster report. Corequisite: BME 3302. [2]

BME4951 - Design of Biomedical Engineering Devices and Systems II
Course Description

Integration of the engineering and life science backgrounds of senior biomedical engineering students through the presentation of design principles for medical devices and systems. Design principles and case examples for biomedical electronics, mechanical, chemical, and computing systems are presented. A full-semester design project is required. Evaluation is conducted through periodic oral and written presentations, and through a final written and poster report. Prerequisite: BME 4950. [3]

BME4959 - Senior Engineering Design Seminar
Course Description

Elements of professional engineering practice. Professionalism, licensing, ethics and ethical issues, intellectual property, contracts, liability, risk, reliability and safety, interdisciplinary teams and team tools, codes, standards, professional organizations, careers, entrepreneurship, human factors, and industrial design. Prerequisite: senior standing. Corequisite: BME 4950. FALL. [1]

Business

BUS1100 - Essentials of Financial Reporting
Course Description

(Previously BUS 2100) Emphasis on mandated corporate disclosure. Economic concepts that guide the development and use of accounting conventions as well as the institutional context that disciplines producers and users. Not open to students who have earned credit for FNEC 1600 without permission, as students will forfeit credit hours. Serves as repeat credit for FNEC 1600. Prerequisite: ECON 1020. [1.5]

BUS1300 - Principles of Finance
Course Description

(Previously BUS 2300) Emphasis on asset valuation. Stock and bond valuation, capital budgeting, cost of capital, market efficiency, and company valuation. Not open to students who have earned credit for FNEC 2700 without permission, as students will forfeit credit hours. Serves as repeat credit for FNEC 2700. Prerequisite: BUS 1100 (Previously BUS 2100), ECON 1020, and one of BME 3200, ECON 1500, ECON 1510, MATH 1011, MATH 2810, MATH 2820, MATH 2821, PSY 2100, PSY-PC 2110, or SOC 2100. [1.5]

BUS1400 - Organizational Behavior
Course Description

(Previously BUS 2400) Accomplishing goals by effectively working for, with, and through others. The units of analysis explored are individuals, teams, and organizations. Not open to HOD or HOS majors, or to students who have earned credit for HOD 2100 without permission, as students will forfeit credit hours. Serves as repeat credit for HOD 2100. [1.5]

BUS1600 - Principles of Marketing
Course Description

(Previously BUS 2600) Success in business is driven by providing goods and services that consumers need and want. This course covers how to achieve such success through analyses of companies, customers, and competitors, and making the right decisions regarding what products to offer, and how to price, promote, and distribute them. Course content spans a wide variety of settings including consumer goods, hi-tech, and service firms, and puts a particular emphasis on digital marketing opportunities and the evolving role of social media. Not open to students who have earned credit for MGRL 1200 without permission, as students will forfeit credit hours. Serves as repeat credit for MGRL 1200. Prerequisite: one of BME 3200, ECON 1500, ECON 1510, MATH 1011, MATH 2810, MATH 2820, MATH 2821, PSY 2100, PSY-PC 2110, or SOC 2100. [1.5]

BUS1700 - Managing Operations
Course Description

(Previously BUS 2700) Provides an overview of operations in both service and manufacturing organizations. Process analysis, queuing, inventory management, quality management, lean operations, and optimization. Prerequisite: ECON 1020 and one of BME 3200, ECON 1500, ECON 1510, MATH 1011, MATH 2810, MATH 2820, MATH 2821, PSY 2100, PSY-PC 2110, or SOC 2100. [1.5]

Business-Arts&Science

BUSA1001 - Commons iSeminar
Course Description

(Previously MGRL 1001) Topics vary. General Elective credit only. [1] (No AXLE credit)

BUSA1100W - Fundamentals of Management
Course Description

(Previously MGRL 1100W) Principles and practices of business in all areas of organization, finance, marketing, human resources, technology, and operations. Does not count as an elective in the undergraduate business minor. Serves as repeat credit for students who have earned credit for 1100. [3] (SBS)

BUSA2150 - Leading Business Through Crisis
Course Description

Responses of business leaders respond in times of crisis (e.g., climate change, global pandemic, product recall, etc.). Awareness, risk assessment, business continuity, adverse events, adaptation, reputation management, and resilience. How individual and organizational perspective, purpose, priorities, plans, and performance shape leadership choices and outcomes. Serves as repeat credit for MGRL 3333, section 01 Spring 2021. [3] (SBS)

BUSA2160 - Corporate Social Responsibility
Course Description

Roles and responsibilities of business in society. Stakeholder theory, governance, intersection of strategy and operations, and "ESG" (environmental/ social governance) from company and investor perspectives globally. Focus on diversity/inclusion and climate change/sustainability. Serves as repeat credit for MGRL 3333, section 02 in Spring 2021. [3] (SBS)

BUSA2200 - Data Analysis and Presentation
Course Description

(Previously MGRL 2200) Collection, structure, and analysis of data. Quantitative problem solving using spreadsheets. Design strategy and principles for communication of results. Prerequisite: One of BME 3200, ECON 1500, ECON 1510, MATH 1011, MATH 2810, MATH 2820, MATH 2821, PSY 2100, PSY-PC 2110, or SOC 2100. [3] (SBS)

BUSA2205 - Business Development
Course Description

Case studies of processes, techniques, and theories of business development, including sales methodologies, data and analytics, motivation and compensation, sales strategy, and sales execution. Serves as repeat credit for students who completed BUSA 3891 offered spring 2023. [3] (SBS)

BUSA2300 - Entrepreneurship: The Business Planning Process
Course Description

(Previously MGRL 2300) Lean methods for developing a new venture; processes of ideation and innovation; business model validation, fundamentals of new venture funding, and principles of small business operation. [3] (SBS)

BUSA2600 - Managerial Accounting
Course Description

(Previously FNEC 2600) Selected topics in managerial accounting. Prerequisite: BUS 1100 (Previously BUS 2100). [3] (SBS)

BUSA2700 - Consumer Finance
Course Description

Financial decision-making. Saving, borrowing, spending, and investing strategies given interest rates, inflation, transaction costs, management fees, and taxes. Financial institution assessment and pricing of risk given monetary and fiscal policies, credit scoring models, regulation, adverse selection, moral hazard, and actuarial tables. Emotional and behavioral biases in finance. No credit for students who completed FNEC 3333 or BUSA 3334. [3] (SBS)

BUSA2705 - Corporate Finance
Course Description

(Previously FNEC 2705) Strategic financial decisions. Corporate financial theory, cost of capital and capital budgeting, discounted cash flow valuation, and financial multiples. Payout policy, equity and debt financing, option pricing theory, and applications. Prerequisite: BUS 1300 (Previously BUS 2300). [3] (SBS)

BUSA3105 - Negotiation
Course Description

(Previously MGRL 3105) Contemporary challenges in leading change in organizations and building effective management teams. The context and dynamics of negotiation; components, structure, and management of negotiations; and varying requirements across the spectrum of negotiation types. [3] (SBS)

BUSA3110 - Business Management
Course Description

(Previously MGRL 3110) Seminar. Analysis of cases representing strategic decisions in operations, resource management, competitive balance, and product and service offerings. Prerequisite: BUS 1100 and BUS 1600 (Previously BUS 2100 and BUS 2600), or BUSA 3255 (Previously MGRL 3255). [3] (SBS)

BUSA3200 - Advanced Marketing
Course Description

(Previously MGRL 3200) Case study of processes, techniques, and theories of marketing, including branding, advertising, interactive media, sales promotion, and marketing research. Offered on a graded basis only. Prerequisite: BUS 1600 (Previously BUS 2600). [3] (SBS)

BUSA3255 - Corporate Strategy
Course Description

(Previously MGRL 3255) Elective intended for business minor. Relationship between organizational structure and strategy. Decision structures to achieve performance objectives. Analysis of team, competitor, and market issues and dynamics. Prerequisite: BUS 1100 (Previously BUS 2100). [3] (SBS)

BUSA3300 - Entrepreneurial Challenge
Course Description

(Previously MGRL 3300) Simulation of the entrepreneurial experience from idea generation to funding. Development of a complete business plan, including financial projections, and competition for funding from investors. Offered on a graded basis only. Prerequisite: BUSA 2300 (Previously MGRL 2300). [3] (SBS)

BUSA3333 - Leading Business In Times of Crisis
Course Description

(Previously MGRL 3333) Events that threaten an organization's survival. How organizational purpose, effective communication, and solid planning and execution informs and improves a leader's response. C-level executives who have guided their organizations through major disruptions. Leadership skills to anticipate threats, to cope with adverse events, and to adapt to changing conditions. [3] (SBS)

BUSA3334 - Consumer Finance
Course Description

(Previously FNEC 3333) Money management. Earning, saving, investing, spending, and borrowing. Budgetary obligations and planning for retirement. Developments in consumer finance, pros and cons to the consumer. Institutions, payment mechanisms, asset classes, optimal asset allocation, and retirement objectives. [3] (SBS)

BUSA3605 - Financial Reporting and Analysis
Course Description

(Previously FNEC 3605) Selected topics in accounting and financial reporting. Cash flow statements, income taxes, long-term debt, and leases. Investments, derivative securities, contingencies, stockholders' equity, and purchase accounting. Prerequisite: BUS 1100 (Previously BUS 2100). [3] (SBS)

BUSA3700 - Investment Analysis
Course Description

(Previously FNEC 3700) Investment principles and practices. Security analysis and valuation. Portfolio theory. Current issues in the financial sector. Stock market simulation. Prerequisite: BUS 1300 (Previously BUS 2300). [3] (SBS)

BUSA3705 - Financial Management
Course Description

(Previously FNEC 3705) Analysis of cases representing capital budgeting, forecasting cash flow, risk assessment, capital structure, and mergers and acquisitions. Seminar. Prerequisite: BUS 1300 (Previously BUS 2300). [3] (SBS)

BUSA3710 - Corporate Valuation
Course Description

(Previously FNEC 3710) Intrinsic, relative, and contingent valuation methodologies. Theoretical and market basis for investment. Valuation project. Prerequisite: BUS 1300 (Previously BUS 2300). [3] (SBS)

BUSA3841 - Directed Study
Course Description

(Previously MGRL 3841) Directed readings and related field research toward a scholarly project conceived and executed under the supervision of a faculty member. Limited to juniors and seniors; may not be repeated. [3] (No AXLE credit)

BUSA3851 - Independent Study in Business
Course Description

(Previously MGRL 3851) A program of independent reading in consultation with an adviser. Written permission of an instructor and the program director required. [Variable credit: 1-3; may not be repeated] (No AXLE credit)

BUSA3891 - Special Topics
Course Description

Business and management issues. May be repeated for credit if there is no duplication in topic. No more than three hours may be counted toward the BUS minor. [3] (No AXLE credit)

Career Development

CAR2300 - Career Development: Life Beyond VU
Course Description

Application of career theory, self-assessment, and practical exercises and experiences to enhance the career development of Arts & Science students. Focus on connecting majors with the world of work, exploring career options, and improving written and oral communications related to the workplace. Designed especially for sophomores and juniors. [1.5] (No AXLE credit)

Catalan

CTLN1103 - Intensive Elementary Catalan
Course Description

Romance tongue of northeastern Spain, Andorra, and southwestern France. Emphasis on oral communication, grammar, reading, and culture. Prior study of another Romance language through the intermediate level is expected. No credit for students who have earned credit for a higher level Catalan language course. [3] (INT)

Chemical and Biomolecular Engineering

CHBE2100 - Chemical Process Principles
Course Description

A foundation for advanced work in chemical engineering. Process problems of a chemical and physico-chemical nature. Emphasis on stoichiometry, material balances, and energy balances required for design computation. Prerequisite: MATH 1301. Corequisite: CHEM 1602. FALL, SPRING. [3]

CHBE2150 - Molecular and Cell Biology for Engineers
Course Description

Basic molecular and cellular biology principles and concepts. Application of engineering principles to further the understanding of biological systems. Protein structure and function, transcription, translation, post-translational processing, cellular organization, molecular transport and trafficking, and cellular models. Not open to students who have earned credit for BSCI 1510 without permission. Total credit for this course and BSCI 1100 or BSCI 1510 will not exceed 3 credit hours. Credit reduced from second course taken (or from test or transfer credit as appropriate). Prerequisite: CHEM 1602. FALL. [3]

CHBE2200 - Chemical Engineering Thermodynamics
Course Description

Application of the laws of thermodynamics to chemical engineering systems. Entropy balances and analysis of thermodynamic cycles. Methods of estimating thermodynamic properties of pure fluids and mixtures, including equations of state, to provide background for chemical process design and simulation. Corequisite: MATH 2300. FALL, SPRING. [3]

CHBE2250 - Modeling and Simulation in Chemical Engineering
Course Description

Development of chemical engineering process models and their numerical solutions. The models include solution of linear and non-linear equations, eigenvalue problems, differentiation, and integration, ordinary differential equations, linear and nonlinear regression. Chemical process simulation using commercial simulators is introduced. Prerequisite: CHBE 2100. Corequisite: CHBE 2200; MATH 2420; CS 1100 or 1101 or 1103 or 1104. SPRING. [3]

CHBE2860 - Introduction to Undergraduate Research
Course Description

Introduction to research under the direction of a ChBE faculty member. Students in the School of Engineering may only receive open elective credit for CHBE 2860. FALL, SPRING. [1-3]

CHBE2900W - Technical Communications for Chemical Engineers
Course Description

Preparation for academic and professional communication tasks. Principles of effective communication, information design, and audience awareness. Development of written reports, oral presentations, posters, visuals, emails, letters, and memos for communicating technical details. Corequisite: CHBE 2200. SPRING [1]

CHBE3200 - Phase Equilibria and Stage-Based Separations
Course Description

Thermodynamic principles and calculations of mixture phase equilibrium. Development of correlations to design chemical separation processes. Applications to separation processes involving gases, liquids, and solids such as distillation, adsorption, and extraction. Simulation of separation processes. Prerequisite: CHBE 2100, CHBE 2200, and either CHBE 2250 or BME 2301. FALL. [3]

CHBE3250 - Chemical Reaction Engineering
Course Description

Thermodynamic basis of chemical equilibrium. Analysis of chemical kinetic data and application to the design of chemical reactors. Batch, semibatch, and flow reactors are considered in both steady-state and transient operation. Brief treatments of catalysis and physical and chemical adsorption. Prerequisite: CHBE 2200. SPRING. [3]

CHBE3300 - Fluid Mechanics and Heat Transfer
Course Description

Principles of momentum and energy transport and their application to the analysis and design of chemical and biological engineering systems. Prerequisite: PHYS 1601, MATH 2420. FALL. [3]

CHBE3350 - Mass Transfer and Rate-Based Separations
Course Description

Principles of mass transfer and their application to the analysis of chemical and biological engineering systems. Design of rate-based separation operations. Prerequisite: CHBE 3300. SPRING. [3]

CHBE3600 - Chemical Process Control
Course Description

Design of control systems for chemical processes. Principles of process dynamics and control of single and multivariable systems. Frequency and stability analyses and their effect on controller design. Prerequisite: CHBE 2250; MATH 2400 or 2420. FALL. [3]

CHBE3860 - Undergraduate Research
Course Description

Opportunities for individual students to do research under the guidance of a faculty member. Requires faculty sponsorship of the project. [1-3 each semester]

CHBE3861 - Undergraduate Research
Course Description

Opportunities for individual students to do research under the guidance of a faculty member. Requires faculty sponsorship of the project. [1-3 each semester]

CHBE3890 - Special Topics
Course Description

[Variable credit: 0-3 each semester]

CHBE3900W - Chemical Engineering Laboratory I
Course Description

Laboratory experiments in momentum, energy and mass transport, focusing on chemical engineering fundamentals, instrumentation, and unit operations. Statistical treatment of data, error analysis, and experimental design. Written reports, oral presentations, and laboratory safety are emphasized. One 5-hour laboratory per week. Prerequisite: CHBE 2100, CHBE 2250, CHBE 2900W, CHBE 3300. Corequisite: CHBE 3350. SPRING. [3]

CHBE4200 - Additive and Polymer-based Manufacturing
Course Description

Scaling up prototypes through industrial processes. Operating principles of advanced forms of 3D printing (stereolithography and powder bed fusion). How properties of polymeric, ceramic, and metallic materials inform the 3D printing process and certification of printed parts. Computer-aided modeling of manufactured parts with a focus on minimizing anisotropic properties and dimensional instability. Fundamentals of polymer melt flow and simulation in mold cavities to optimize part fabrication. Students design a prototype injection mold and iterate on their design using flow simulation software and 3D printing. Prerequisite: DF 2100. FALL. [3].

CHBE4500 - Bioprocess Engineering
Course Description

Application of cellular and molecular biology to process engineering to describe the manufacture of products derived from cell cultures. Design and scale-up of bioreactors and separation equipment. Metabolic and protein engineering utilizing genetically engineered organisms. Prerequisite: BSCI 1510 or CHBE 2150; CHBE 3250, CHBE 3300. [3]

CHBE4800 - The Molecular and Cellular Mechanome
Course Description

Applications of molecular and cellular biophysics and mechanics over various lengths, energy and timescales to describe biological phenomena through an 'omics' systems level perspective to molecular motors, cell machinery, mechanotransduction, cell migration, cell division, and nonequilibrium receptor ligand interactions. Physical and engineering based descriptions of molecular and cellular machinery incorporating biophysics and statistical and continuum mechanics perspectives. Modern and historical results, instrumentation, and measurement techniques. Prerequisite: Junior standing. FALL. [3]

CHBE4805 - Biomolecular Engineering and Design
Course Description

Approaches for interrogating and controlling biological function on a molecular and cellular level. Applications to biotechnology fields such as diagnostics, therapeutics, and regenerative medicine. Focus areas include concepts of molecular recognition, extracellular and intracellular signal transduction, protein engineering, genome engineering, cellular engineering, and tissue engineering. Prerequisites: ChBE 2150 or BSCI 1510. [3]

CHBE4810 - Metabolic Engineering
Course Description

Analysis and synthesis of metabolic networks using principles of thermodynamics, kinetics, and transport phenomena. Computational approaches for predicting metabolic phenotypes. Experimental techniques to measure and manipulate key metabolic variables including pathway fluxes, protein/gene expression, enzyme regulation, and intracellular metabolite concentrations. Prerequisite: BSCI 1510 or CHBE 2150; junior standing. [3]

CHBE4820 - Immunoengineering
Course Description

Approaches and technologies for manipulating and studying the immune system. Topics include fundamentals of immunology, immunology tools and methods, vaccines and immunotherapies, drug delivery principles, and materials engineering for immunomodulation. Prerequisite: ChBE 2150 or BSCI 1510. [3]

CHBE4825 - Biomaterials for Drug Delivery
Course Description

Overview, design, and characterization of biomaterials used in biological systems for drug delivery. Molecular principles, polymer synthesis, controlled release, stimuli-responsive materials, biomimetic materials, biological considerations, and delivery strategies. Emphasis on rational design, transport, and applications. Serves as repeat credit for BME 4340. Prerequisite: ChBE 2150 or BSCI 1510. Corequisite: ChBE 3350 or BME 3000. [3]

CHBE4830 - Molecular Simulation
Course Description

Modern tools of statistical mechanics, such as Monte Carlo and molecular dynamics simulation, and variations. Methods, capabilities, and limitations of molecular simulation and applications to simple and complex fluids relevant to the chemical and related processing industries. Prerequisite: CHBE 2200 or ME 2220 or CHEM 3310. [3]

CHBE4840 - Synthesis and Applications of 2D Nanomaterials
Course Description

Structure-property relationships and applications of atomically thin, two-dimensional materials and 2D/layered systems. Preparation by mechanical exfoliation, solution processing, and bottom-up synthesis. Nucleation/growth of 2D materials via gas/solid, liquid/solid, and catalytic/phase transformation reactions. Kinetic vs. thermodynamic processing, stabilizing meta-stable intermediates, interface engineering, and scale-up. Prerequisite: CHEM 1602 or MSE 1500; junior standing. [3]

CHBE4850 - Semiconductor Materials Processing
Course Description

Materials processing unit operations of silicon device manufacturing. Basic semiconductor physics and device theory, production of substrates, dopant diffusion, ion implantation, thermal oxidation and deposition processes, plasma deposition processes, photolithography, wet chemical and plasma etching, and analytical techniques. Lectures alternate with one two-hour laboratory on a weekly basis. FALL. [3]

CHBE4860 - Molecular Aspects of Chemical Engineering
Course Description

Integration of molecular chemistry, property-based thermodynamic descriptions, and a focus on intermolecular energetics for process analysis and product design. Case studies involve molecular, macromolecular, supramolecular, and biomolecular systems. Prerequisite: CHEM 2211 or 2221; CHBE 2200. [3]

CHBE4870 - Polymer Science and Engineering
Course Description

Macromolecular systems with emphasis on the interrelationship of chemical, physical, and engineering properties. Further relation of these properties to synthesis. Physicochemical and biological applications. Prerequisite: CHBE 2200, a basic understanding of organic and physical chemistry. [3]

CHBE4875 - Colloid Science and Engineering
Course Description

Fundamental concepts (surface forces, self-assembly, electrokinetics) and experimental techniques (microscopy, scattering, measurement of charge) in colloid science. Applications to personal care products, energy devices, and drug delivery. Prerequisite: ChBE 2200, ChBE 3300. [3]

CHBE4880 - Corrosion Science and Engineering
Course Description

Aqueous-phase metal and alloy corrosion phenomena. Fundamental chemistry and electrochemistry theories, as applied to corroding systems. Specific forms of corrosion including pitting, crevice corrosion, and galvanic corrosion. Methods for corrosion control based on electrochemical fundamentals. Prerequisite: CHBE 3300. SPRING. [3]

CHBE4900W - Chemical Engineering Laboratory II
Course Description

Laboratory experiments in unit operations covering reactions and separations. Interpretation of data for equipment and process design. Methods of hazard analysis, their application to lab-scale unit operations, and the scale-up of chemical processes from laboratory data. Written reports and oral presentations are emphasized. One 5-hour laboratory per week. Prerequisite: CHBE 3200, CHBE 3250, CHBE 3350, CHBE 3900W or BME 3900W or CHEM 3315. FALL. [3]

CHBE4950W - Chemical Engineering Process and Product Design
Course Description

A systematic approach to design and safety practices for chemical process operations leading to the identification of a team-based capstone design project. Design, economic evaluation of alternatives, ethics, and cost and safety analysis of chemical, biological, and petroleum process and products. Systems-based process integration design methodologies. Steady-state simulation using chemical engineering design software. Three lecture hours and one two-hour laboratory each week. Prerequisite: CHBE 3200, CHBE 3250, CHBE 3350. FALL. [4]

CHBE4951W - Chemical Engineering Design Projects
Course Description

Continuation of a team-based design project from ChBE 4950W. Evaluations through periodic oral and written presentations, a final written report, and a poster report. Emphasis on design tools and methodologies, economic assessment, and hazard analysis leading to a recommended chemical product or process design that meets key safety and economic criteria. Prerequisite: CHBE 4950W. SPRING. [3]

CHBE4959 - Professional Practice of Safety in Chemical Engineering Design
Course Description

Elements of professional engineering practice. Hazard analysis methodologies applied to chemical products and processes are emphasized and applied to lab-scale unit operations. Professional practice of the design of safe chemical products and processes is examined through case studies. Corequisite: ChBE 4950W. FALL. [1]

Chemistry

CHEM1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE Credit)

CHEM1010 - Introductory Chemistry
Course Description

General principles for non-science majors or those not planning on taking additional chemistry courses. The periodic table, chemical reactions, properties of solutions, and atmospheric chemistry with connections to global environmental issues. No prior chemistry experience required. Not a prerequisite for advanced courses in chemistry. Not open to students who have earned credit for CHEM 1601, 2211, or 2221 without permission. Total credit for this course and 1601, 2211, or 2221 will not exceed 3 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [3] (MNS)

CHEM1010L - Introductory Chemistry Laboratory
Course Description

Laboratory to accompany 1010. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1010. Not open to students who have earned credit for CHEM 1601L or 2221L without permission. Total credit for this course and 1601L or 2221L will not exceed 1 credit hour. Credit reduced from second course taken (or test or transfer credit) as appropriate. Corequisite: 1010. [1] (No AXLE credit)

CHEM1020 - Introductory Chemistry
Course Description

General principles for non-science majors or those not planning on taking additional chemistry courses. Chemistry of water, basic nuclear chemistry, organic and biochemistry, with discussion of the chemistry of common medicines and nutritional chemistry. No prior chemistry experience required. Not a prerequisite for advanced courses in chemistry. Not open to students who have earned credit for CHEM 1602, 2212, or 2222 without permission. Total credit for this course and 1602, 2212, or 2222 will not exceed 3 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [3] (MNS)

CHEM1020L - Introductory Chemistry Laboratory
Course Description

Laboratory to accompany 1020. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1020. Not open to students who have earned credit for CHEM 1602L or 2222L without permission. Total credit for this course and 1602L or 2222L will not exceed 1 credit hour. Credit reduced from second course taken (or test or transfer credit) as appropriate. Corequisite: 1020. [1] (No AXLE credit)

CHEM1030 - The Chemistry of French Culture
Course Description

Chemistry through the lens of French culture: food, art, terroir, and the commitment to sustainability. Taught in English. Intended for non-science majors. No prior chemistry experience required; not a prerequisite for advanced courses in chemistry. Not open to students who have earned credit for CHEM 1601, 2211, or 2221 without permission. Total credit for this course and 1601, 2211, or 2221 will not exceed 3 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [3] (MNS)

CHEM1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

CHEM1601 - General Chemistry
Course Description

General principles of chemistry for science and engineering students. Composition and structure of matter, chemical reactions, bonding, solution chemistry, and kinetics. Thermodynamics, equilibrium, acids and bases, electrochemistry, and coordination compounds. Three lectures per week and a recitation period. Not open to students who have earned credit for CHEM 1010 without permission. Serves as repeat credit for 1010. Corequisite: 1601L. [3] (MNS)

CHEM1601L - General Chemistry Laboratory
Course Description

Laboratory to accompany 1601. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1601. Not open to students who have earned credit for CHEM 1010L without permission. Serves as repeat credit for CHEM 1010L. Prerequisite or corequisite: 1601. [1] (No AXLE credit)

CHEM1602 - General Chemistry
Course Description

Continuation of 1601. General principles of chemistry for science and engineering students. Composition and structure of matter, chemical reactions, bonding, solution chemistry, and kinetics. Thermodynamics, equilibrium, acids and bases, electrochemistry, and coordination compounds. Three lectures per week and a recitation period. Not open to students who have earned credit for CHEM 1020 without permission. Serves as repeat credit for 1020. Prerequisite: 1601. Corequisite: 1602L. [3] (MNS)

CHEM1602L - General Chemistry Laboratory
Course Description

Laboratory to accompany 1602. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1602. Not open to students who have earned credit for CHEM 1020L without permission. Serves as repeat credit for CHEM 1020L. Prerequisite: 1601L. Corequisite: 1602. [1] (No AXLE credit)

CHEM2100 - Introduction to Analytical Chemistry
Course Description

Fundamental quantitative analytical chemistry with emphasis on principles of analysis, separations, equilibria, stoichiometry and spectrophotometry. Prerequisite: CHEM 1602 and CHEM 1602L. Corequisite: 2100L. [3] (MNS)

CHEM2100L - Analytical Chemistry Laboratory
Course Description

Laboratory to accompany Chemistry 2100. One four-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 2100. Prerequisite or corequisite: 2100. [1] (No AXLE credit)

CHEM2211 - Organic Chemistry for Advanced Placement Students
Course Description

Fundamental types of organic compounds; their nomenclature, classification, preparations, reactions, and general application. Three hours of lecture and one hour of recitation each week. Not open to students who have earned credit for CHEM 2221. Total credit for this course and CHEM 2221 will not exceed 3 credit hours. Prerequisite: enrollment limited to first-year students with advanced placement chemistry scores of 5, or the approval of the director of undergraduate studies. Corequisite: 2221L. [3] (MNS)

CHEM2212 - Organic Chemistry for Advanced Placement Students
Course Description

Continuation of 2211. Fundamental types of organic compounds; their nomenclature, classification, preparations, reactions, and general application. Three hours of lecture and one hour of recitation each week. Not open to students who have earned credit for CHEM 2222. Total credit for this course and CHEM 2222 will not exceed 3 hours. Prerequisite: enrollment limited to first-year students with advanced placement chemistry scores of 5, or 2211, or the approval of the director of undergraduate studies. Corequisite: 2222L. [3] (MNS)

CHEM2221 - Organic Chemistry
Course Description

Fundamental types of organic compounds. Nomenclature and classification. Preparations, reactions, and general application. Three hours of lecture and one hour of recitation each week. Serves as repeat credit for CHEM 2211. No credit for graduate students in chemistry. Prerequisite: 1602. Corequisite: 2221L. [3] (MNS)

CHEM2221L - Organic Chemistry Laboratory
Course Description

Laboratory to accompany 2211 or 2221. One four-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 2211 or 2221. Prerequisite or corequisite: 2211 or 2221. [1] (No AXLE credit)

CHEM2222 - Organic Chemistry
Course Description

Continuation of 2221. Fundamental types of organic compounds. Nomenclature and classification. Preparations, reactions, and general application. Three hours of lecture and one hour of recitation each week. Serves as repeat credit for CHEM 2212. Prerequisite: 2211 or 2221. Corequisite: 2222L. [3] (MNS)

CHEM2222L - Organic Chemistry Laboratory
Course Description

Laboratory to accompany 2212 or 2222. One four-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 2212 or 2222. Prerequisite or corequisite: 2212 or 2222. [1] (No AXLE credit)

CHEM2610 - Introduction to Nanochemistry
Course Description

Synthesis, characterization, and assembly of nanoscale materials. No credit for graduate students in chemistry. Prerequisite: 1602. [3] (MNS)

CHEM3010 - Inorganic Chemistry
Course Description

A survey of modern inorganic chemistry including coordination compounds and the compounds of the main-group elements. Representative reactions and current theories are treated. Prerequisite or corequisite: 3300 or 3310. [3] (MNS)

CHEM3020 - Introduction to Bioinorganic Chemistry
Course Description

Functions of inorganic elements in living cells. The manner in which coordination can modify the properties of metallic ions in living systems. Prerequisite: 2212 or 2222. [3] (MNS)

CHEM3120 - Instrumental Analytical Chemistry
Course Description

Chemical and physical principles of modern analytical chemistry instrumentation. Prerequisite: 2100 and either 2212 or 2222. [3] (MNS)

CHEM3135W - Forensic Analytical Chemistry
Course Description

Techniques, methodologies, data collection, and interpretation. Laboratory experience with drug analysis, toxicology, trace, and arson analysis. Two hours of lecture and one four-hour laboratory per week. Prerequisite: 2100 and 2100L. [3] (MNS)

CHEM3220 - Spectroscopic Identification of Organic Compounds
Course Description

Theoretical and practical aspects of spectroscopic methods, with an emphasis on NMR spectroscopy, for structural characterization of organic compounds. Prerequisite: 2212 or 2222. [3] (MNS)

CHEM3300 - Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
Course Description

Chemical kinetics and principles of quantum chemistry applied to molecular structure, bonding, and spectroscopy. Prior study of multivariable calculus is expected. No credit for graduate students in chemistry. Prerequisite or corequisite: PHYS 1501, 1601, or 1911. Prerequisite: MATH 1201 or 1301. [3] (MNS)

CHEM3310 - Physical Chemistry: Chemical Thermodynamics and Equilibrium
Course Description

Chemical thermodynamics and equilibrium, their statistical foundation, and applications to chemical phenomena. Prerequisite or corequisite: PHYS 1501, 1601, or 1911. Prerequisite: MATH 1201 or 1301. [3] (MNS)

CHEM3315 - Physical Chemistry Laboratory
Course Description

Experiments in chemical thermodynamics and kinetics. Data analysis and presentation. No credit for graduate students in chemistry. One three-hour laboratory or one lecture per week. Calculus through Math 2300 recommended. Prerequisite: 2222L and either MATH 1201 or 1301. [1] (No AXLE credit)

CHEM3320 - Biophysical Chemistry
Course Description

Applications of chemical thermodynamics, kinetics, quantum chemistry, and spectroscopy in biochemistry and chemical biology. Students interested in an in-depth coverage of these topics are recommended to take CHEM 3300 and CHEM 3310 sequence; not open to students who have completed 3300 and 3310. This course is not eligible for the chemistry major; it is eligible for the chemistry minor. Prerequisite or corequisite: PHYS 1501, 1601, or 1911. Prerequisite: MATH 1201 or 1301; and BSCI 1510. [3] (MNS)

CHEM3333 - Special Offering
Course Description

Topics vary by section and instructor. May be repeated for credit; students may register for more than one section of this course in the same semester. Not eligible toward the major or minor. [3] (MNS)

CHEM3600 - Chemical Literature
Course Description

Assigned readings and problems in the nature and use of the chemical literature. Prerequisite: 2212 or 2222. [1] (No AXLE credit)

CHEM3630 - Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modifications
Course Description

Synthesis and characterization of macromolecular materials including linear, branched, dendrimetric, and star polymers. Mechanical and physiochemical properties of polymeric types. Kinetics of living polymerization. Applications to nanostructures, templates, and advanced devices. Prerequisite: 1602. [3] (MNS)

CHEM3710 - Bioorganic Chemistry
Course Description

Essential metabolites including vitamins, steroids, peptides, and nucleotides. Consideration of phosphate esters and the synthesis of oligodeoxynucleotides. Three lectures per week. Prerequisite: 2212 or 2222. [3] (MNS)

CHEM3715 - Chemistry of the Coral Reef
Course Description

Application of quantitative analytical chemistry techniques and spectroscopic methods to characterize molecules with potential materials chemistry or medicinal chemistry applications. In-depth chemistry research experience; mandatory participation in all scheduled field research and laboratory sessions. Prerequisite: 2100, 2100L, 2222, 2222L [3] (MNS)

CHEM3841 - Readings for Honors
Course Description

Open only to students in the departmental honors program. General reading supervised by research adviser. [2] (No AXLE credit)

CHEM3842 - Readings for Honors
Course Description

Open only to students in the departmental honors program. Continuation of 3841, with emphasis on research planned. [2] (No AXLE credit)

CHEM3860 - Undergraduate Research
Course Description

Open to students who have earned at least 8 hours of credit and a minimum GPA of 2.7 in chemistry, with consent of the director of undergraduate studies and the sponsoring faculty member. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

CHEM3902 - Pedagogy for Chemical Education
Course Description

[Previously listed as CHEM 2620] Pedagogical techniques for the chemistry classroom. Knowledge application in discussion sections and development of teaching materials. Consent of Instructor required for registration. Offered on a graded basis only. May be repeated once for credit. Prerequisite: 2212 or 2222. [1] (No AXLE Credit)

CHEM3980 - Honors Research
Course Description

Open only to students in the departmental honors program. Original research supervised by research adviser, to be reported in thesis form with oral examination thereon. [2-4]

CHEM4050 - Introduction to Organometallic Chemistry
Course Description

A general description of the preparation, reaction chemistry, molecular structure, bonding, and spectroscopic identification of organometallic compounds of the transition metals. Prerequisite or co-requisite: 3010 or 3020. [3] (MNS)

CHEM4210 - Organic Chemistry Structure and Mechanism
Course Description

Stereochemistry and conformational analysis; mechanisms of organic reactions; linear free-energy relationships; reactive intermediates. Serves as repeat credit for CHEM 5210. Not open to students who have earned credit for 5209 without permission. Total credit for this course and CHEM 5209 will not exceed 4 hours. Credit reduced from most recent course taken (or from test or transfer credit) as appropriate. Prerequisite: either 2212 or 2222 and either 3300 or 3311. [3] (MNS)

CHEM4230 - Physical Organic Chemistry
Course Description

Structure and bonding in organic molecules. Reactive intermediates and organic reaction mechanisms. Prerequisite: 3300 or 3310. [3] (MNS)

CHEM4240 - Advanced Organic Reactions
Course Description

A comprehensive study of organic reactions and their application to the preparation of small molecules. Prerequisite: 4210. Three lectures per week. [3] (MNS)

CHEM4350 - Statistical Thermodynamics
Course Description

Statistical mechanics and chemical equilibrium. Distribution laws, partition functions, and thermodynamic properties of atoms and molecules. Applications to gases, liquids, and solids. Prerequisite: either 3300 or 3310, and Math 2300. [3] (MNS)

CHEM4720 - Drug Design and Development
Course Description

Concepts of drug design; physical chemistry of drug interactions with receptors, enzymes, and DNA; drug absorption and distribution. Organic chemistry of drug metabolism; mechanism of action for selected therapeutic classes. Prerequisite: 3710 or BSCI 2520. [3] (MNS)

CHEM4965 - Advanced Integrated Laboratory
Course Description

Multidisciplinary laboratory projects. Experimental design, synthetic techniques, chemical analysis, spectroscopy, and computational methods. Offered on a graded basis only. Limited to senior majors. Prerequisite: 2100, 2100L. [3] (No AXLE credit)

CHEM4966 - Advanced Integrated Laboratory
Course Description

Continuation of 4965. Offered on a graded basis only. Limited to senior majors. Prerequisite: 4965. [3] (No AXLE credit)

CHEM4980 - Honors Research
Course Description

Open only to students in the departmental honors program. Original research supervised by research adviser, to be reported in thesis form with oral examination thereon. [2-4] (No AXLE credit)

CHEM4999 - Honors Research
Course Description

Open only to students in the departmental honors program. Original research supervised by research adviser, to be reported in thesis form with oral examination thereon. [2] (No AXLE credit)

Chinese

CHIN1011 - Basic Chinese
Course Description

Designed exclusively for students with no previous exposure to the language. The basic pronunciation, grammar, and writing system of Mandarin Chinese. Simple conversation, the pinyin Romanization system, basic Chinese characters, and cultural elements embedded in the language. No credit for students who have earned credit for 1101 or a more advanced Chinese language course. [3] (No AXLE credit)

CHIN1012 - Basic Chinese
Course Description

Continuation of 1011. No credit for students who have earned credit for 1101 or a more advanced Chinese language course. Prerequisite: 1011. [3] (No AXLE credit)

CHIN1101 - Elementary Chinese I
Course Description

Introduction to Modern Chinese pronunciation, grammar, conversation, reading, and writing. Two hours of lecture and three hours of drill per week. No credit for students who have earned credit for 1012 or a more advanced Chinese language course. [5] (No AXLE credit)

CHIN1102 - Elementary Chinese II
Course Description

Continuation of 1101. Introduction to Modern Chinese pronunciation, grammar, conversation, reading, and writing. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 1012 or 1101. [4] (INT)

CHIN1231 - Calligraphy
Course Description

Basic skills of writing standard script kaishu. Basic aesthetic of Chinese calligraphy. No Chinese language background necessary. [1] (No AXLE credit)

CHIN2201 - Intermediate Chinese I
Course Description

Oral and written language training. Two hours of lecture and three hours of drill per week. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 1102. [5] (INT)

CHIN2202 - Intermediate Chinese II
Course Description

Continuation of 2201. Language training in oral and written Chinese. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 2201. [4] (INT)

CHIN2211 - Chinese for Heritage Learners I
Course Description

Intended for students who have some informal training in listening and speaking Mandarin Chinese. Basic literacy and other aspects of language proficiency. Offered on a graded basis only. No credit for students who have earned credit for a more advanced Chinese language course. [3] (INT)

CHIN2212 - Chinese for Heritage Learners II
Course Description

Continuation of 2211. Intended for students who have some informal training in listening and speaking Mandarin Chinese. Basic literacy and other aspects of language proficiency. Offered on a graded basis only. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 2211. [3] (INT)

CHIN3301 - Advanced Chinese I
Course Description

Readings in Chinese culture to enhance proficiency in oral and written Chinese. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 2202. [3] (INT)

CHIN3302 - Advanced Chinese II
Course Description

Continuation of 3301. Readings in Chinese culture to enhance proficiency in oral and written Chinese. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 3301. [3] (INT)

CHIN3302W - Advanced Chinese II
Course Description

Reading and writing essays about modern Chinese culture and society. Repeat credit for 3302. No credit for students who have earned credit for a more advanced Chinese language course. Graded basis only. Prerequisite: 3301. [3] (INT)

CHIN3851 - Independent Study
Course Description

Designed primarily for majors who want to study Chinese not regularly offered in the curriculum. Must have consent of instructor. May be repeated for a total of 12 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum 12 credits total for all semesters of CHIN 3851 and 3852] (No AXLE credit)

CHIN3852 - Independent Study
Course Description

Designed primarily for majors who want to study Chinese not regularly offered in the curriculum. Must have consent of instructor. May be repeated for a total of 12 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum 12 credits total for all semesters of CHIN 3851 and 3852] (No AXLE credit)

CHIN4001 - Fourth-year Conversational Chinese
Course Description

Idiomatic usage and strategies for oral communication and understanding of Chinese urban culture and society. Texts drawn from short TV clips reflecting ordinary lives of Beijing people. Prerequisite: 3302. [2]

CHIN4002 - 4th-Year Conversational Chinese II
Course Description

Continuation of 4001. Idiomatic usage and strategies for oral communication and understanding of Chinese urban culture and society. Texts drawn from short TV clips reflecting ordinary lives of Beijing people. Prerequisite: 3302. [2] (No AXLE credit)

CHIN4401 - Business Chinese I
Course Description

Language skills for listening, speaking, reading, and writing in business environments. Modern China from economic and business perspectives. Prerequisite: 3302 or 3302W. [3] (INT)

CHIN4402 - Business Chinese II
Course Description

Continuation of 4401. Language skills for listening, speaking, reading, and writing in business environments. Modern China from economic and business perspectives. Prerequisite: 4401. [3] (INT)

CHIN4403 - Readings in Modern Chinese Media
Course Description

Books, newspapers, Internet, and television documents and productions pertaining to political, social, and economic issues in China, including foreign trade-related issues. Prerequisite: 3302 or 3302W. [3] (INT)

CHIN4404 - Readings in Modern Chinese Media
Course Description

Continuation of 4403. Books, newspapers, and Internet sources pertaining to political, social, and cultural issues. Prerequisite: 3302 or 3302W. [3] (INT)

CHIN4405 - Classical Chinese Literature and Philosophy
Course Description

Classical writings by Confucius, Sunzi, and Zhuangzi. Poems by Li Bai and Du Fu. Excerpts from The Dream of the Red Chamber. Linguistic comparisons between classical and modern Chinese. Prerequisite: 3302 or 3302W. [3] (INT)

CHIN4406 - Readings in Modern Literary Chinese
Course Description

1910 to the present. Chinese literature and poetry. Linguistic transformations that produced modern literary Chinese. Prerequisite: 3302 or 3302W. [3] (INT)

Cinema and Media Arts

CMA1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

CMA1002W - Moving Images and Analytical Thinking
Course Description

Moving images and new media from various genres, periods, and national contexts. May be repeated for credit once if there is no duplication in topic. Offered on a graded basis only. [3] (HCA)

CMA1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

CMA1200 - War on Screen
Course Description

Representations of World War II and the fight against Nazi Germany in Hollywood and other cinemas, contemporary video games, television, and installation art. How current modes of warfare and the global war on terror have changed the conventions of depicting war. Taught in English. [3] (HCA)

CMA1400 - Introduction to Video Games
Course Description

Scholarly study and technical production of immersive digital experiences. Economic and cultural landscape of video games. No prior experience needed; open to students of all backgrounds and majors. [3] (HCA)

CMA1500 - Fundamentals of Film and Video Production
Course Description

Technologies and techniques of filmmaking. Digital video cameras, staging and lighting, sound recording, post-production sound, and image editing. Offered on a graded basis only. [3] (HCA)

CMA1600 - Introduction to Film and Media Studies
Course Description

Stylistic tendencies and narrative strategies, genres, and theoretical approaches. Live-action cinema, animation, experimental cinema, television, and computer-generated moving images. [3] (HCA)

CMA1820W - Virtual Worlds
Course Description

Virtual reality promises to immerse users in places and moments that were once inaccessible. History of human attempts to conquer space and time to achieve "presence" with the distant past, faraway lands, future, and even God. Students design and create analog or digital experiences using virtual worlds as a storytelling device. [3] (P)

CMA2100 - Digtial Storytelling, Interactive Narratives and Digital Memory
Course Description

Impact of digital technologies on narrative, identity, and social memory through readings and creative digital projects. Unique benefits of digital media for effective and meaningful storytelling. Social function and art of storytelling across a variety of digital applications and platforms. No prior technological skills or media arts experience necessary. Offered on a graded basis only. [3] (HCA)

CMA2240 - Narrative Filmmaking
Course Description

Fictional media production. Art and practice of scripted storytelling for cinema, television, and digital media. Offered on a graded basis only. Not open to students who completed CMA 3891-01 offered fall 2022. Prerequisite: 1500. [3] (HCA)

CMA2250 - 16mm Filmmaking
Course Description

Camera operation, lighting, non-sync sound design, and film pre-production for 16 mm and celluloid film. Offered on a graded basis only. Prerequisite 1500. [3] (No AXLE credit)

CMA2260 - Digital Production Workshop
Course Description

Digital cinematography, sound design, and editing. Individual and group projects. Offered on a graded basis only. Prerequisite 1500. [3] (No AXLE credit)

CMA2270 - Documentary Filmmaking
Course Description

Nonfiction media production. History, theory, practice, and ethical considerations of nonfiction modes. Offered on a graded basis only. Not open to students who completed CMA 3891-02 offered spring 2022. Prerequisite: 1500. [3] (HCA)

CMA2290 - Alternate Media Modes
Course Description

Genres, styles, and techniques outside of the dominant modes of media-making. Emphasis on production. Offered on a graded basis only. [3] (HCA)

CMA2300 - Film and Media Theory
Course Description

Historical overview of the major analytical and critical approaches to the study of film as an aesthetic and cultural form. Contemporary perspectives on cinema, video, and new media. Prerequisite: 1600. [3] (P)

CMA2301 - Race in Film and Media
Course Description

Racialization through cinema and modern media's infrastructures and aesthetics. Imbrication of race and audiovisual culture in wider cultural contexts, such as the histories of capitalism, the Civil Rights movement, and questions of gender and sexuality. [3] (HCA)

CMA2302 - Global Queer Cinema and Media
Course Description

Aesthetics and circulation of queer cinema in different national and transnational contexts. Impacts of queer cinema and theory in relation to globalization, diaspora, and transnational politics. [3] (HCA)

CMA2370 - Film and Media Aesthetics
Course Description

Cinema, television, and digital media. Advanced historical, cultural, and textual analysis. Form, genre, movements, style, and technology. [3] (HCA)

CMA2400 - History of World Cinema
Course Description

Survey of world film history from 1895 to the present. Key films and filmmakers. Historical, aesthetic, national, and political contexts of films and film movements. Prerequisite: 1600. [3] (HCA)

CMA2500W - Screenwriting
Course Description

Techniques of screenwriting. [3] (HCA)

CMA2510W - Writing for the Stage and Screen
Course Description

Techniques for writing plays and screenplays with critical attention to dramatic themes and characterization. [3] (HCA)

CMA2530W - Modern Israeli Culture
Course Description

Social and cultural history of modern Israel from the establishment of the State in 1948 to the present. Representations of national identity, collective belonging, and historical memory in public culture. Offered on a graded basis only. [3] (INT)

CMA2600W - Advanced Screenwriting
Course Description

Story structure, character development, and dialogue. Prerequisite: 2500W. [3] (HCA)

CMA2610 - A History of German Film
Course Description

A curated presentation of the history of German cinema with special emphasis on its sociocultural contexts and artistic achievements. Discussion will include pertinent theories of cinematography and cinematic narration. Taught in English. [3] (INT)

CMA3257 - Virtual Reality Design
Course Description

Interdisciplinary, project-based introduction to Virtual Reality (VR). Creation of immersive environments. Student projects guided by faculty mentors to create real-world, consequential VR simulations relevant to, and innovative in, their respective fields. Note: This class is not open to students with a Computer Science major or minor, CS students should enroll in CS 4249. Serves as repeat credit for students who have completed UNIV 3279. [3] (MNS)

CMA3333 - Special Offerings
Course Description

Topics vary by section and instructor. May be repeated for credit; students may register for more than one section of this course in the same semester. [3]

CMA3726 - New Media
Course Description

History, theory, and design of digital media. Literature, video, film, online games, and other interactive narratives. Not open to students who have completed ENGL 1111 section 60. Serves as repeat credit for CMA 3333 01, section 01 in Fall 2020, and for ENGL 3333, section 01 in Fall 2020. [3] (HCA)

CMA3770 - Russian Cinema
Course Description

Masterpieces of Russian and Soviet cinema from the silent period to the present. Montage theory, propaganda film, politics of the art house, and rise of the Russian blockbuster. Films by master directors Eisenstein, Vertov, Tarkovsky, Sokurov, and Zvyagintsev. Soviet musicals and contemporary popular cinema. Knowledge of Russian not required. [3] (INT)

CMA3771 - Global Korean Cinema
Course Description

From the colonial period to the Korean Wave in the new millennium. Film criticism, transnational and national contexts of film production, aesthetics of auteurs and genres, and local and global receptions of Korean cinema. [3] (INT)

CMA3772 - French and Francophone Cinema
Course Description

The themes and art of film in France and the French-speaking world. Offered in French at Vanderbilt in France and in English at Nashville. When offered in English, this course does not count toward the minor, and writing must be done in French to count toward the major. [3] (INT)

CMA3773 - Classic Italian Cinema
Course Description

From the 1910s to the 1970s. Selected works from Neorealism to Art Film. Relationship between cinema and the other arts. Contrasting film styles, including abstraction and realism, and tradition and transgression. Knowledge of Italian is not required. [3] (INT)

CMA3774 - Contemporary Italian Cinema
Course Description

From the 1970s to the present. Postmodern forays into metafiction, parody, and political and social critique. The return to realism and New Regionalism in the twenty-first century. Knowledge of Italian is not required. [3] (HCA)

CMA3850 - Independent Study
Course Description

Projects are arranged with individual professors and must be confirmed by the director of Cinema and Media Arts within two weeks of the beginning of classes; otherwise the student will be dropped from the rolls. [Variable credit: 1-3 each semester. Limit of 6 hours for 3850 and 3851 combined for majors.] (No AXLE credit)

CMA3851 - Independent Study
Course Description

Projects are arranged with individual professors and must be confirmed by the director of Cinema and Media Arts within two weeks of the beginning of classes; otherwise the student will be dropped from the rolls. [Variable credit: 1-3 each semester. Limit of 6 hours for 3850 and 3851 combined for majors.] (No AXLE credit)

CMA3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline can gain experience working on projects related to film and media in public or private organizations. Responsibilities include conducting background research and developing skills in film and media study and production. Hours for background readings and research will be completed in CMA 3881 concurrently with 3880. Normally a 2.90 grade point average, 6 hours of prior work in Cinema and Media Arts, and approval of the student's plan by the director of undergraduate studies are required. A research paper and report must be submitted at the end of the semester during which the internship training is completed. Offered on a Pass/Fail basis only and must be taken concurrently with 3881. Hours of 3880 will not count toward the Film Studies Major or minor. Corequisite: 3881. [Variable credit: 1-9] (No AXLE credit)

CMA3881 - Internship Readings and Research
Course Description

Under faculty supervision, students from any discipline can gain experience working on projects related to film and media in public or private organizations. Responsibilities include conducting background research and developing skills in film and media study and production. Hours for background readings and research will be completed in CMA 3881 concurrently with CMA 3880. Normally a 2.90 grade point average, 6 hours of prior work in Cinema and Media Arts, and approval of the student's plan by the director of undergraduate studies are required. A research paper and report must be submitted at the end of the semester during which the internship training is completed. Readings and research conducted under the supervision of a member of the Cinema and Media Arts program and a substantial research paper or written project (such as a screenplay, treatment, or production plan related to the Training component) is required. Corequisite: 3880. [Variable credit: 1-6] (No AXLE credit)

CMA3891 - Special Topics in Film and Video Production
Course Description

Topics vary. May be repeated more than once if there is no duplication of topic. Prerequisite: 1500. [3] (No AXLE credit)

CMA3892 - Special Topics in the Study of Film
Course Description

Topics vary. May be repeated more than once if there is no duplication of topic. [3] (HCA)

CMA3893 - Special Topics in National Cinema and Movements
Course Description

Major directors, genres, styles of film-making in a specific national context. May be repeated for credit more than once if there is no duplication in topic. [3] (HCA)

CMA4961 - Senior Seminar on Criticism, Theory, and History
Course Description

Advanced reading and research in film. Offered on a graded basis only. Prerequisite:1600 and senior standing. [3] (No AXLE credit)

CMA4962 - Senior Seminar on Film Practice
Course Description

Advanced independent filmmaking, portfolio assembly, and professionalism. Offered on a graded basis only. Prerequisite: 1500 and senior standing. [3] (No AXLE credit)

CMA4998 - Senior Honors Research
Course Description

Acquisition, reading, and analysis of primary source research material. Open only to senior honor students. [3] (No AXLE credit)

CMA4999 - Senior Honors Thesis
Course Description

Writing a thesis under the supervision of the thesis advisor. Open only to senior honor students. Prerequisite: 4998. [3] (No AXLE credit)

Civil Engineering

CE2101 - Civil and Environmental Engineering Information Systems
Course Description

Information technologies used by civil and environmental engineers. Lab and project-oriented course focusing on developing skills in engineering drawings, computer graphics, plans reading, leveling, mapping, and GIS. Integration of CAD and surveying with team-based projects. FALL [3]

CE2120 - Sustainable Design in Civil Engineering
Course Description

Concepts and methods of sustainability; resilience in civil engineering design. Best practices. Economic, social, and environmental analysis. Ratings, indices, and measurements. Local, regional, and federal policy. Challenges posed by climate change. Sustainability and resilience rating systems. Applications to development and design. FALL. [3]

CE2200 - Statics
Course Description

Vector analysis of two- and three-dimensional equilibrium of particles, rigid bodies, trusses, frames, and machines. Internal forces, shear and moment diagrams, cables, centroids, moments of inertia, and friction. Credit offered for only one of CE 2200 or BME 2100. Corequisites: MATH 1301, PHYS 1601. FALL, SPRING, SUMMER [3]

CE2205 - Mechanics of Materials
Course Description

Stress and strain; tension, compression, and shear; Hooke's law, Mohr's circle, combined stresses, strain-energy. Beams, columns, shafts, and continuous beams. Deflections, shear and moment diagrams. Prerequisite: CE 2200. FALL, SPRING, SUMMER. [3]

CE3100W - Civil and Environmental Engineering Laboratory
Course Description

A team project-oriented course that integrates principles of engineering design, simulation, and experimentation as applied to civil engineering. Emphasis on experimental design, data analysis, and technical communication. Prerequisite: CE 2205. SPRING. [2]

CE3200 - Structural Analysis
Course Description

Classification; nature of loads and their calculation; analysis of statically determinate and indeterminate beams, trusses, and frames using classical methods (integration, moment area, energy) and matrix methods; basics of nonlinear behavior; structural analysis software. Prerequisite: CE 2205. FALL. [3]

CE3205 - Structural Design
Course Description

Loads and their identification; issues of safety and uncertainties; steel and concrete behavior and design of components in compression, tension, bending, shear; application to simple structural systems; use of the AISC Steel Specifications; sustainability issues. Prerequisite: CE 3200. SPRING [3]

CE3250 - Geotechnical Engineering
Course Description

Origin, formation, identification, and engineering properties of soils. Discussion on index properties, soil moisture, soil structure, compressibility, shear strength, stress analysis, Rankine and Coulomb earth pressure theories and bearing capacity. Laboratory experiences. Graduate credit for earth and environmental sciences majors. Prerequisite: CE 2205. FALL. [3]

CE3300 - Risk, Reliability, and Resilience Engineering
Course Description

Fundamental concepts in probability and statistical inference. Counting methods, discrete and continuous random variables, and their associated distributions. Sampling distributions, point estimation, confidence intervals, and hypothesis testing. Applications of probability and statistics to risk, reliability, and resilience of engineering systems. Prerequisite: MATH 2300. SPRING. [3]

CE3501 - Transportation Systems Engineering
Course Description

Planning, design, and operations of transportation systems. Particular emphasis on the design process, traffic engineering, urban transportation planning, the analysis of current transportation issues, and the ethics of transportation safety. SPRING. [3]

CE3600 - Environmental Engineering
Course Description

Parameters affecting environmental quality, including air and water pollutants; treatment techniques to achieve drinking water quality or permit safe discharge to the environment. Sustainability. Contaminant transport and interactions of contaminants with the environment. Risk assessment and governmental regulations covering air, water, solid and hazardous wastes. Residuals management including hazardous and solid waste. Prerequisite: CHEM 1601, PHYS 1601, MATH 2420. FALL. [3]

CE3700 - Fluid Mechanics
Course Description

Physical properties of fluids, fluid statics; integral and differential equations of conservation of mass, energy, and momentum; principles of real fluid flows: boundary layer effects, flow through pipes, flow in open channels, drag forces on bodies. Emphasis on civil and environmental engineering applications. Credit not awarded for both CE 3700 and ME 3224. Prerequisite: ME 2190, MATH 2420. FALL, SUMMER. [3]

CE3700L - Fluid Mechanics Laboratory
Course Description

Team project-oriented course. Practical applications of fluid mechanics principles through laboratory exercises and field trips. Corequisite: CE 3700. FALL. [1]

CE3705 - Water Resources Engineering
Course Description

Engineering of water resources and sewerage systems that control the quantity, quality, timing, and distribution of water to support human habitation and the needs of the environment. Closed conduit flow, open channel flow, surface hydrology, groundwater hydrology, and contaminant transport. Prerequisite: CE 3700 or CHBE 3300 or ME 3224. SPRING. [3]

CE3841 - Directed Study
Course Description

Directed individual study of a pertinent topic in civil and environmental engineering. May include literature review and analysis, analytical investigations, and/or experimental work. Prerequisite: Junior standing, completion of two CE courses, and one-page proposal approved by supervising faculty member and chair. [1-3 each semester]

CE3842 - Directed Study
Course Description

Continuation of CE 3841 in the same or another area of civil and environmental engineering. Prerequisite: CE 3841 and one-page proposal approved by supervising faculty member and chair. [1-3 each semester]

CE3843 - Directed Study
Course Description

Continuation of CE 3842 in the same or another area of civil and environmental engineering. Prerequisite: CE 3842 and one-page proposal approved by supervising faculty member and chair. [1-3 each semester]

CE3890 - Special Topics
Course Description

0-3

CE4100 - Geographic Information Systems (GIS)
Course Description

Principles of computerized geographic information systems (GIS) and analytical use of spatial information. Integration with global positioning systems (GPS) and internet delivery. Includes GIS software utilization and individual projects. SPRING. [3]

CE4150 - Energy Systems Engineering
Course Description

Physical principles of energy conversion. Energy sources and usage. Sustainability and carrying capacity. Systems tools and economics for energy systems. Energy distribution and storage. Future energy system design. Prerequisite: MATH 2300. SPRING. [3]

CE4200 - Advanced Structural Steel Design
Course Description

Advanced topics in column and beam design: elastic and inelastic analysis and design of continuous beams, composite beams, torsion design, behavior and design of bolted and welded connections, structural planning and design of structural systems such as multistory buildings. Prerequisite: CE 3205. FALL. [3]

CE4205 - Intelligent Transportation Systems
Course Description

Elements of intelligent transportation system (ITS) architecture. Survey of component systems. Analysis of potential impacts. Field operational tests, analysis methods, deployment initiatives and results. SPRING. [3]

CE4210 - Advanced Reinforced Concrete Design
Course Description

Design and behavior of two-way slab systems. Yield line theory. Shear and torsion analysis and design. Serviceability requirements and control of deflections of reinforced concrete systems. Prestressed concrete. Prerequisite: CE 3205. SPRING. [3]

CE4211 - Mechanics of Composite Materials
Course Description

Review of constituent materials (reinforcements, matrices, and interfaces) and fabrication processes. Prediction of properties of unidirectional and short fiber materials (micromechanics). Anisotropic elasticity (derivation of Hooke's law for anisotropic materials, macromechanics of laminated composites). Analysis of laminated composites based on Classical Lamination Theory. Behavior of composite beams and plates. Special topics (creep, fracture, fatigue, impact, and environmental effects). Prerequisite: CE 2205, MSE 1500, MSE 1500L. SPRING. [3]

CE4240 - Infrastructure Systems Engineering
Course Description

Systems-level approach to the infrastructure of the built environment. Elements of systems engineering. Case studies of infrastructure under duress. Smart infrastructure. Transportation, building, and water and wastewater supply and distribution systems. Infrastructure interdependencies and concepts of smart cities. Applications to infrastructure system design. FALL. [3]

CE4250 - Foundation Analysis and Design
Course Description

Study of shallow and deep foundation elements and systems for civil engineering structures considering geotechnical, structural, and construction aspects. Corequisite: CE 3205. Prerequisite: CE 3250. SPRING. [3]

CE4300 - Reliability and Risk Case Studies
Course Description

Review of historical events involving successes and failures in managing system reliability and risk from a wide range of perspectives, including design, production, operations, organizational culture, human factors and exogenous events. Analysis of risk factors leading to event occurrence, as well as event consequences in terms of impacts to public health, safety, security and environmental protection. Evaluation of risk mitigation strategies based on achievable goals, technical and political feasibility, and economic impact. Cases drawn from natural disasters, industrial accidents, and intentional acts. Prerequisite: Junior standing. FALL. [3]

CE4320 - Data Analytics for Engineers
Course Description

Programming, analysis, and visualization of real data for the purposes of informing decision making in engineering problems. Statistical modeling in a practical and applied perspective; application of data analytics to bridge the gap between data and decisions; fundamentals of design of experiments. Prerequisite: CE 3300 or MATH 2810 or MATH 2820. FALL. [3]

CE4340 - Risk and Decision Analysis
Course Description

Risk quantification, risk perception, decision-making under uncertainty, risk communication. Model risk and decisions using analytical and simulation approaches. Focus on theory and methodology, applications in engineering, environmental systems, business, and healthcare. Prerequisite: CE 3300 or MATH 2810 or MATH 2820. FALL. [3]

CE4400 - Construction Project Management
Course Description

Theory and application of the fundamentals of construction project management. The construction process and the roles of professionals in the process. Overview of the construction project from conception through completion. Application of management practices including planning, directing, cost minimizing, resource allocation, and control of all aspects of construction operations and resources. Credit given for only one of ENGM 3700, CE 4400, or EECE 4950. Prerequisite: CE 3205. FALL. [3]

CE4401 - Advanced Construction Project Management
Course Description

Current and critical issues in the construction industry, including best practices developed at the Construction Industry Institute (CII). Guest lecturers include representatives of the CII and visiting industry leaders. Prerequisite: CE 4400. FALL. [3]

CE4405 - Construction Estimating
Course Description

Estimation of material, labor, and equipment quantities, including costing and pricing of construction projects. Application of estimating practices using real-world examples and project estimating software. Corequisite: CE 4400. FALL. [3]

CE4410 - Construction Planning and Scheduling
Course Description

Fundamentals of construction planning and scheduling. Application of management practices including: process planning; directing, costing; resource allocation; and controlling all aspects of construction operations and resources, from pre-construction through operation and maintenance. Use of real-world examples and project scheduling software. Prerequisite: CE 4400. SPRING. [3]

CE4415 - Construction Materials and Methods
Course Description

Implications of design realities, material specifications, code limitations, and regulations on the construction process. Natural and man-made materials, construction techniques, and other issues that impact quality, constructability, and life-cycle assessment. SUMMER. [3]

CE4420 - Construction Law and Contracts
Course Description

Review of case studies involving successes and failures in legal principles and landmark cases relevant to civil engineering and construction. Contracts, torts, agency and professional liability, labor laws, insurance, expert testimony, arbitration, patents and copyrights, sureties, and ethics. Prerequisite: CE 4400. SPRING. [3]

CE4425 - Building Information Modeling
Course Description

Generation and management of building data during its life cycle. Three-dimensional, real-time, dynamic modeling to increase productivity in building design and construction. Considerations of building geometry, spatial relationships, geographic information, and building components. Corequisite: CE 4400. FALL. [3]

CE4430 - High Performance and Green Buildings
Course Description

Design and construction of high performance buildings and related systems in buildings. Leadership in Energy and Environmental Design (LEED) green Building Rating System (TM) building approach to sustainability. Prerequisite: CE 4400. SPRING. [3]

CE4500 - Transportation Systems Design
Course Description

Geometric analysis of transportation ways with particular emphasis on horizontal and vertical curve alignment and superelevation. Design of highways, interchanges, intersections, and facilities for pedestrians, and air, rail, and public transportation. Prerequisite: CE 3501 or 3601. SPRING. [3]

CE4505 - Urban Transportation Planning
Course Description

Analytical methods and the decision-making process. Transportation studies, travel characteristic analysis, and land-use implications are applied to surface transportation systems. Emphasis is on trip generation, trip distribution, modal split, and traffic assignment. Planning processes in non-urban settings are also presented. Prerequisite: CE 3501 or CE 3601. SPRING [3]

CE4510 - Traffic Engineering
Course Description

Analysis of the characteristics of traffic, including the driver, vehicle, volumes, capacities, congestion, roadway conditions, complete streets and accidents. Traffic regulations, markings, signing, signalization, and safety programs are also discussed. Prerequisite: CE 3501 or CE 3601. FALL. [3]

CE4950 - Civil Engineering Design I
Course Description

A capstone design course for civil engineering students. Includes project conception, design, economic evaluations, safety, reliability, ethics, social and environmental impact, licensure, and government regulations. Projects may be interdisciplinary, competition-oriented, or traditional civil engineering projects. Prerequisite: CE 3205. FALL [1].

CE4951 - Civil Engineering Design II
Course Description

Continuation of CE 4950. The course involves an oral presentation and the submission of a final design report. Prerequisite: CE 4950. SPRING. [2]

CE4959 - Senior Engineering Design Seminar
Course Description

Elements of professional engineering practice. Professionalism, licensing, ethics and ethical issues, intellectual property, contracts, liability, risk, reliability and safety, interdisciplinary teams and team tools, codes, standards, professional organizations, careers, entrepreneurship, human factors, and industrial design. Prerequisite: senior standing. Corequisite: CE 4950. FALL. [1]

Classical Hebrew

CHEB1101 - Beginning Classical Hebrew I
Course Description

Alphabet, basic grammar, and vocabulary. Short readings from the Bible. No credit for students who have earned credit for a more advanced Classical Hebrew language course. Offered on a graded basis only. [3] (No AXLE credit)

CHEB1102 - Beginning Classical Hebrew II
Course Description

Transition to extensive reading of the Bible. No credit for students who have earned credit for a more advanced Classical Hebrew language course. Offered on a graded basis only. Prerequisite: 1101. [3] (INT)

CHEB2200 - Intermediate Classical Hebrew
Course Description

Review of grammar and expanding vocabulary. Selected readings in prose and poetry from the Bible. No credit for students who have earned credit for a more advanced Classical Hebrew language course. Prerequisite: 1102. [3] (INT)

CHEB2300 - Ugaritic
Course Description

Orthography, phonology, morphology, and syntax. Introduction to approaches of comparative Semitics and historical Hebrew grammar. Selected readings from various genres illustrating language and literature of ancient Canaan. Prerequisite: 1102. [3] (INT)

CHEB3010 - Historical Hebrew Grammar
Course Description

Linguistic origins and development within Northwest Semitic subgroup. Phonology, morphology, and lexicon. Theory and method in historical linguistics and comparative Semitics. Selected readings in literary, documentary, and epigraphic texts. Prerequisite: 2200. [3] (HCA)

CHEB3020 - Classical Hebrew Poetry
Course Description

History and genres of ancient verse. Selected readings from the Bible, including Job and Psalms. Prerequisite: 2200. [3] (HCA)

CHEB3030 - West Semitic Inscriptions
Course Description

Orthography, phonology, morphology, and syntax. Studying Hebrew, Aramaic, Phoenician, and Moabite epigraphic texts. Theory and method in historical linguistics and comparative Semitics. Prerequisite: 2200. [3] (HCA)

Classics

CLAS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

CLAS1010 - Introduction to Mediterranean Studies
Course Description

History and geography of southern Europe, north Africa, and Near East from Iron Age through Middle Ages (ca. 1000 BCE-1500 CE). Greeks, Romans, and related peoples. Abrahamic religions. Case studies in complexity and change, community and identity, innovation and prosperity, power and conflict, and environment and cosmos. Cultural transmission and reception. [3] (INT)

CLAS1020 - Introduction to Mediterranean Archaeology
Course Description

Iron Age through Middle Ages (ca. 1000 BCE-1500 CE). Remains of Greeks, Romans, and related peoples of southern Europe, north Africa, and the Near East. Society, economy, religion, urbanism. Human settlement and natural environment. Classical and Renaissance paradigms. Modern theory of material and visual culture. Techniques of data collection, analysis, and curation [3] (SBS)

CLAS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

CLAS1120 - Greek Civilization
Course Description

A survey of the history and achievements of Greece from its Mycenaean origins to the Roman domination. Topics include literature, art, athletics, Periclean Athens, the conquest of Alexander, and the Hellenistic age. [3] (INT)

CLAS1130 - The Greek Myths
Course Description

A study of the nature of the Greek myths, with consideration of the related Near Eastern myths and the early history of myths in Greece. Both the divine and the heroic myths, with some attention to the development of these myths in Italy and to their influence upon art and literature. [3] (HCA)

CLAS1140 - Ancient Medicine and Its Legacy
Course Description

Theories and practices of medicine in the ancient Greco-Roman world; Hippocratic and Galenic writings. Ethics and socio-cultural values. Interactions with philosophical traditions. The Classical heritage of modern medicine. [3] (SBS)

CLAS1150 - Roman Civilization
Course Description

Ancient Roman civilization from mythical foundations to the fall of the empire. A historical survey of topics including art and architecture, city life, agriculture, religion, law, slavery, public entertainment, and literature. [3] (INT)

CLAS1200W - Classics and Contemporary Culture
Course Description

Reception and appropriation of Greco-Roman culture by the Western world and its relationship to contemporary critical issues. Sociopolitical concerns, including racism, colonialism, and political extremism. Offered on a graded basis only. [3] (P)

CLAS2100 - History of the Ancient Near East
Course Description

From the neolithic period to the conquests of Alexander the Great, in the geographical area from Persia to Troy and Egypt. Special attention to the history of Israel. [3] (INT)

CLAS2110 - History of Greece to Alexander the Great
Course Description

The Greek world from the beginning of the Mycenaean Age (1650 B.C.) to the end of the Classical period. Special attention to the relationship between political history and the development of Hellenism. [3] (INT)

CLAS2120 - The Greek World from Alexander the Great to the Roman Empire
Course Description

The eastern Mediterranean from the rise of Macedon and Alexander the Great to the High Roman Empire. Social, cultural, political, and religious changes. Issues of imperialism and colonialism, and questions of identity in a geographically expansive Greek world. [3] (INT)

CLAS2150 - History of the Roman Republic
Course Description

The growth and evolution of the Roman world, from the foundation of the city in the seventh century B.C. to the reign of Caesar Augustus. The Romans' unification of Italy, conquest of the Mediterranean and western Europe, adoption of Hellenism, and overthrow of the Republic. [3] (INT)

CLAS2160 - History of the Roman Empire
Course Description

The Roman world from Augustus to the collapse of the western empire in the fifth century. Political, military, social, and religious history. Special attention given to problems arising from use of the primary sources as well as to controversies in modern scholarship. [3] (INT)

CLAS2180 - The Mediterranean World from Late Antiquity to the Middle Ages
Course Description

Eastern Roman Empire from Constantine to Arab conquests. Political, social, cultural, and religious history, including monasticism, barbarian invasions, changing roles of Emperor and Church, and birth of Islam. Developments in urban life and landscape. [3] (INT)

CLAS2200 - Archaic and Classical Greek Art and Architecture, 1000 to 400 B.C.E.
Course Description

Sculpture, vase painting, architecture, and the minor arts. Formal and stylistic developments in relation to changing cultural background. [3] (HCA)

CLAS2210 - Late Classical Greek and Hellenistic Art and Architecture
Course Description

Sculpture, vase painting, architecture, and the minor arts from after the Parthenon to the Roman Empire. Media that developed significantly in this period, such as wall painting and mosaic. [3] (HCA)

CLAS2250 - Roman Art and Architecture
Course Description

Sculpture, architecture, and painting from the tenth century B.C.E. to the early fourth century C.E. Daily life of the Romans as seen in excavations of the towns of Pompeii and Herculaneum. [3] (HCA)

CLAS2260 - The Art of Pagans, Christians, and Jews
Course Description

Religious art of the Roman Empire in late antiquity. Visual art reflecting religious beliefs and practices. Greco-Roman cults, early Christianity, and Rabbinical Judaism. [3] (HCA)

CLAS2270 - Early Christian and Byzantine Art
Course Description

The development of architecture, sculpture, painting, and the minor arts from the third through eleventh centuries. [3] (HCA)

CLAS2300 - Ancient Science
Course Description

Major traditions of scientific thought and practice in the ancient Mediterranean world: emergence, aims, methods and achievements. Relationship between science and society, ancient and modern. [3] (SBS)

CLAS3000 - Classical Tradition in America
Course Description

Influences of classical Greece and Rome on the literature, politics, architecture, and values of the United States from the colonial period to the present. [3] (US)

CLAS3010 - The Ancient Origins of Religious Conflict in the Middle East
Course Description

Religious oppositions in the eastern Mediterranean world from the Maccabean revolt to the Muslim conquests of the seventh century; beginnings of religious militancy; challenges of monotheism to Greco-Roman civilization; conversion, persecution, and concepts of heresy and holy war in Christianity, Judaism, and Islam. [3] (P)

CLAS3020 - The Classical World on Film
Course Description

Modern cinematic depictions of the mythology, drama, and history of ancient Greece and Rome, accompanied by readings from ancient sources. The Trojan War, Greek tragedy, and the Roman empire. Emphasis on how antiquity is used to express modern concerns and ideologies. [3] (HCA)

CLAS3030 - Death, Disease, and Health in the Ancient World
Course Description

From the Bronze Age to early Christianity and Late Antiquity. Biological history of the Greeks, Romans, and other Mediterranean peoples. Changing concepts of death and afterlife; interpretations of disease; medical thought and practice. Healing, epidemics, natural catastrophe, and dietary variation. Evidence from classical literature, archaeology, bones and teeth. [3] (SBS)

CLAS3100 - Women, Sexuality, and the Family in Ancient Greece and Rome
Course Description

The status and role of women, law and the regulation of the private sphere, sexuality and gender roles, demography and family structure, marriage, children, religion, domestic architecture and the household economy, ancient critiques of the family, and the impact of Christianity. [3] (SBS)

CLAS3110 - Warfare in the Ancient Mediterranean
Course Description

Continuity and change in ancient Greek and Roman warfare 800 B.C. to A.D. 120. Social, political, and religious aspects of war. Effects of war, imperialism, and militarism on internal and external populations. [3] (INT)

CLAS3120 - Humor, Ancient to Modern
Course Description

Ancient comic forms juxtaposed with modern theories of humor. Aristophanic Old Comedy, New Comedy, and Satire. Modern parallels. [3] (HCA)

CLAS3130 - Greek Tragedy
Course Description

Plays by Aeschylus, Sophocles, and Euripides. Development of the genre in ancient Athens. Historical, political, and religious contexts of production. Modern stage adaptations. Not open to students who have completed CLAS 1111 section 6. [3] (HCA)

CLAS3150 - Roman Law
Course Description

The relationship between law and society as illustrated by cases drawn from Roman legal and literary sources. The development of legal reasoning and the rise of an autonomous legal profession at Rome. Delicts (torts), property, contracts, and family law, taught in rotation. May be repeated for credit if in a different area of law.[3] (SBS)

CLAS3160 - Roman Law and Social History
Course Description

Relationship of law and society as illustrated by legal, literary, epigraphic, and papyrological evidence. Views and methodologies of leading modern scholars. Focus on methodology. Marriage, family, personal status, the economy, and judicial system. Basic familiarity with Roman history or law is expected. Serves as repeat credit for HIST 2238. [3] (SBS)

CLAS3190 - Augustan Rome
Course Description

Social, administrative, religious, and military reforms. Common themes in art, architecture, and literature; changes in national identity in the transition from Republic to Empire. Serves as repeat credit for students who have earned credit for 3190W. Prerequisite: 1150, 2150, or 2160. [3] (HCA)

CLAS3190W - Augustan Rome
Course Description

Social, administrative, religious, and mili- tary reforms. Common themes in art, architecture, and literature; changes in national identity in the transition from Republic to Empire. Basic familiarity with Roman history is expected. [3] (HCA)

CLAS3200 - The Greek City
Course Description

The example of ancient Athens. The stoa, the theatre, the house, and fortifications. Institutions such as the courts, the public assembly, and the family. Literary, historical, archaeological, and philosophical sources. [3] (SBS)

CLAS3210 - Religions of the Ancient Mediterranean
Course Description

Ancient religious practices and beliefs through the evidence of archaeological sites, material remains, and written texts. Cross-cultural comparisons of sanctuaries, rituals, priesthoods, and sacred texts and objects. Consideration of mystery cults, magic, and alternative groups. [3] (INT)

CLAS3220 - The Trojan War in History, Art, and Literature
Course Description

Representations in Classical Greek art, literature, and archaeological evidence. The composition of the Homeric epics; the meaning of the Trojan War to later audiences. [3] (HCA)

CLAS3230 - Alexander the Great
Course Description

Alexander's rise to power and conquests in Europe, Asia, and Africa; the legacy of his introduction of Greek culture to the East; his significance to later audiences. Offered on a graded basis only. [3] (HCA)

CLAS3240 - Greek Culture in the Roman World
Course Description

Literature, culture, and politics from the 1st to 4th centuries AD. Developments in rhetoric, elite and popular entertainment, scholarship, and medicine. Relationship of literature to imperial rule. Administration through the prisms of cultural identity, cosmopolitanism, citizenship, religion, and the development of ruling classes. [3] (INT)

CLAS3250W - Jews and Greeks
Course Description

From the seventh century BCE to ca. 1500 CE. Sites of interaction, languages, cultural ties, religious tensions, political conflicts, and competing philosophies. Works by Elephantine, Alexander the Great, the Maccabees, the Septuagint, Aristeas, Josephus, Philo, the rabbis, the New Testament, Ezekiel the Tragedian, Byzantium. [3] (INT)

CLAS3260 - Plato: Knowledge, Reality, and Goodness
Course Description

Major works of one of the most influential thinkers in history. The dialogues: Meno, Phaedo, Republic, and others. Theory of the forms, arguments for immortality, nature of the good. Relevant contemporary thinkers. [3] (HCA)

CLAS3300 - Akkadian
Course Description

Introduction to the cuneiform script and to the grammar of Akkadian, the language of ancient Mesopotamia. Selected readings in Old Babylonian (CODEX Hammurabi, Mari letters) and Neo-Assyrian texts (Creation Poem, Gilgamesh Epic). [3] (INT)

CLAS3301 - Akkadian
Course Description

Continuation of 3300. Introduction to the cuneiform script and to the grammar of Akkadian, the language of ancient Mesopotamia. Selected readings in Old Babylonian (CODEX Hammurabi, Mari letters) and Neo-Assyrian texts (Creation Poem, Gilgamesh Epic). [3] (INT)

CLAS3310 - Culture of the Ancient Near East
Course Description

A survey of highly sophisticated Near East cultures of the last three millennia before the common era (B.C.). Discussion of political histories, and the social, religious, and intellectual heritage of Mesopotamia, Egypt, and Anatolia through excavated artifacts and written documents. [3] (INT)

CLAS3320 - The Amarna Age
Course Description

The Amarna period from the sixteenth through the twelfth centuries B.C.E., as illumined by excavations of palaces and temples in Egypt, Anatolia, Canaan, and Mesopotamia as well as the vast historical, legal, and literary documents of the period. Focus on the internationalism and theological speculation of the period as seen through the powerful personalities and accomplishments of leaders such as Thutmoses III, Suppiluliumas, Ramses II, and the spiritually influential Akehnaten. [3] (INT)

CLAS3333 - Pandemics and Society in Historical Perspective
Course Description

Religious, racial, political, economic and human (psychological) consequences of global pandemics in the pre-modern world, from Antiquity to the Black Death (1348). Assess ways contagion transforms societies and its relation to concurrent issues of violence and social justice. [3] (HCA)

CLAS3350 - History of Early and Medieval Christianity
Course Description

Expansion from second through fifteenth centuries across the Mediterranean into Asia, Africa, and Europe. Believers' practice and doctrine, relationship with Roman Empire, development of the Church, and social and cultural history of believers from after New Testament into late Middle Ages. Global perspective. Roots of Catholicism, Protestantism, and Eastern Christianity. [3] (INT)

CLAS3360 - Early Christian Poetry
Course Description

Composition and reception of verse from Late Antiquity to the Early Middle Ages. Historical, cultural, and geographic contexts of religious poetry and hymnody from the New Testament through the 9th century. Greek and Roman models, Christian literary innovations, and influence on modern writers. Readings in translation from Syriac, Greek, Latin, and Old English. [3] (INT)

CLAS3370 - The History of Syriac Christianity
Course Description

Christians who spoke the Aramaic dialect during Late Antiquity to modern times from the Near East to the Persian Gulf, India, and China. Culture and literature under the Byzantine Empire and the Islamic States in the Middle East. History and theology of religious communities. Historiographical debates about Syriac origins and development. [3] (INT)

CLAS3380 - Desert Spirituality in Early Christianity
Course Description

Rise of asceticism in Late Antiquity. History and geography of asceticism in Syria and Egypt. Diversification and spread across the Mediterranean region. Selected readings in translation of sayings, hagiography, theology, and verse. Legacy in modern belief. [3] (INT)

CLAS3600 - Seminar in the Digital Humanities
Course Description

Theory, method, and applications in history, classics, and religious studies. Focus on historical data and research tools in the study of the Mediterranean world. Integration and manipulation of textual and spatial data. Scholarly interfacing and public access. New media. Developing research plans. [3] (SBS)

CLAS3700 - Uncovering Greek Religion: Cults, Festivals, and Sanctuaries in the Ancient World
Course Description

Paganism to Judaism and early Christianity. Material culture, including architecture, sculpture, votive dedications, and topography of sanctuaries. Relationship between religion and culture. Politics, warfare, and athletics. Impact of ancient cults on modern Greece. Taught in Greece. Offered on a graded basis only. [3] (INT)

CLAS3710 - Archaeology, History, and Culture in Greece: Kenchreai Field School
Course Description

Archaeological field school at the site of Kenchreai with seminars and excursions in southern Greece. Basic techniques in excavation, survey, and the analysis of architecture, artifacts, and bones. Explorations of churches, temples, houses, and tombs. Focus on Greece during the Roman Empire and late antiquity. Landscape settlement, cult practice, cultural and social diversity, and funerary ritual. Offered on a graded basis only. [3] (INT)

CLAS3720 - History and Art of Ancient Rome
Course Description

The mid-second century BCE to the mid-second century CE. Investigating significant sites, monuments, and museum collections in Rome and locations throughout southern Italy. Monumental and domestic architecture, wall paintings, sculpture, coins, and ancient sources. [3] (INT)

CLAS3730 - The Roman to Medieval Near East: Caesarea Excavations, Israel
Course Description

From Herod the Great to the Mamluk conquest. Excavation of the site of Caesarea on the Mediterranean coast. Social, cultural, economic, and religious history. Maritime commerce; Roman rule; and the Christian, Jewish, and Muslim communities. Archaeological methods, geospatial analysis, and processing artifacts. Monumental architecture, urban topography, and littoral environment. Daily field and laboratory work with additional seminars and excursions. [3] (INT)

CLAS3850 - Independent Study
Course Description

Completion of a substantial research paper in either classics or the classical tradition under the direction of a faculty sponsor. Consent of both the faculty sponsor and the director of undergraduate studies is required. May be repeated for a total of 6 credits if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits for all semesters of CLAS 3850] (No AXLE credit)

CLAS3880 - Internship Training
Course Description

Under faculty supervision, students can gain experience in a range of Classics-related programs at public or private institutions including museums and/or federal agencies. Skills can be developed in the areas of public speaking and engagement, digital humanities and cultural heritage management. Credit hours earned are based upon actual work performed at the internship site. A minimum of 1 credit hour in background readings and research must be completed in CLAS 3881 concurrently with, and regardless of, the number of hours earned in 3880. A substantial research paper or report must be submitted at the end of the semester during which the internship is completed. These credit hours may NOT count in the minimum required for the CLAS major or minor. Normally, a 3.0 grade point average, 6 hours of prior work and and prior approval of a specific plan of work by the director of undergraduate studies in Classical and Mediterranean Studies are required. Offered on a Pass/Fail basis only and must be taken concurrently with CLAS 3881. Corequisite: 3881. Variable credit. [1-9] (No AXLE credit)

CLAS3881 - Internship Readings and Research
Course Description

Under faculty supervision, students can gain experience in a range of Classics-related programs, at public or private institutions, including museums and/or federal agencies. Skills can be developed in the areas of public speaking and engagement, digital humanities, and cultural heritage management. Credit hours earned are based upon readings or research supervised by CLAS faculty to lend some intellectual foundation to the internship experience. A minimum of 1 credit hour in background readings and research must be completed in 3881 concurrently with, and regardless of, the number of hours earned in 3880. A substantial research paper or report must be submitted at the end of the semester during which the internship training is completed. These credit hours may count in the minimum required for the CLAS major or minor. Normally, a 3.0 grade point average, 6 hours of prior work and prior approval of a specific plan of work by the director of undergraduate studies in Classical and Mediterranean Studies are required. Offered on a graded basis only and must be taken concurrently with 3880. Co-requisite: 3880. Variable credit: [1-6] (No AXLE credit)

CLAS3890 - Special Topics
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (INT)

CLAS4998 - Senior Honors Thesis
Course Description

Open only to seniors in the departmental honors program. [3] (No AXLE credit)

CLAS4999 - Senior Honors Thesis
Course Description

Open only to seniors in the departmental honors program. [3] (No AXLE credit)

Communication Studies

CMST1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

CMST1002 - Introduction to Communication Studies
Course Description

Theoretical foundations and practice of human communication. Argument and advocacy; public address; and critical analysis of media and culture. [3] (HCA)

CMST1002W - Introduction to Communication Studies
Course Description

Theoretical foundations and practice of human communication. Argument and advocacy; public address; and critical analysis of media and culture. Serves as repeat credit for students who have completed 1002. [3] (HCA)

CMST1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

CMST1500 - Fundamentals of Public Speaking
Course Description

Theory and practice in speaking before an audience. Problems of preparation, content, organization, language, and delivery are treated. [3] (HCA)

CMST1501 - Public Communication of Science
Course Description

Theory and practice of speaking before an audience. Designed around the communication of science to non-specialists. Issues of adaptation, organization, evidence, delivery, and style. [3] (HCA)

CMST1850 - Interpersonal Communication
Course Description

A study of both the theory and application of verbal and nonverbal communication as they occur in relatively unstructured person-to-person and small group settings. [3] (SBS)

CMST2100 - Argumentation and Debate
Course Description

A course in the practice of debate examining argumentation theory. Emphasis on forms of reasoning and use of evidence in debate. Prerequisite: 1500. [3] (HCA)

CMST2110 - Persuasion
Course Description

The theory and practice of persuasion with particular emphasis on speech composition, the use of language and its relationship to oral style, structure, and the relationship of structure to the process of speech preparation. Prerequisite: 1500. [3] (HCA)

CMST2120 - Business Communication
Course Description

Theory and practice of communication in relation to businesses and organizations with application to leadership, values and ethics, strategic communication theory, and organizational conflict. Prerequisite: 1500. [3] (HCA)

CMST2400 - History of World Cinema
Course Description

Survey of world film history from 1895 to the present. Key films and filmmakers. Historical, aesthetic, national, and political contexts of films and film movements. Prerequisite: CMA 1600. [3] (HCA)

CMST2432 - Soccer: Media, Art, and Society
Course Description

Relationship of soccer to political power, globalization, mass media, gender, migration, national identity, and transnational commerce. History of the game and its tactics. Representations of soccer in various artistic media such as literature, film, poetry, and video art. Taught in English. Not open to students who have earned credit for GER 1111.09. [3] (INT)

CMST2750 - Communication, Sports, and Society
Course Description

How sport informs both domestic and international politics, identity, cultures, interpersonal relationships, and nationalism. Case studies in activism, documentaries, film, museums, public discourse, speeches, and sports media. [3] (HCA)

CMST2800 - Rhetoric and Civic Life
Course Description

Public discourse and the duties and prerogatives of citizenship. Theory, models, and criticism of rhetoric and oratory in their deliberative, forensic, and epideictic settings. [3] (HCA)

CMST2850 - Science, Rhetoric, and Public Controversy
Course Description

Historical and contemporary case studies of public debates over science. Rhetorical strategies of scientists and public advocates; ethical and social implications. [3] (HCA)

CMST2900 - Values in Modern Communication
Course Description

An examination of values, explicit and implicit, in communication situations in modern American society. The course begins with the discovery and analysis of values and applies this process to technological innovation and rhetorical choice, interpersonal communication, advertising and consumerism, and mass-media persuasion. [3] (P)

CMST2950 - Rhetoric of Mass Media
Course Description

A study of the nature, effects, reasons for the effects, ethics, regulation, and criticism of contemporary mass media communication. Political causes, news reporting, commercial advertising, and similar sources of rhetoric are included. [3] (HCA)

CMST3000 - Rhetoric of the American Experience, 1640-1865
Course Description

A critical and historical examination of the methods and effects of public debate and other attempts to influence the attitudes, affective response, and behavior of the American people. Attention to the rhetorical features of selected issues and speakers from colonial times through the Civil War. [3] (US)

CMST3001 - Rhetoric of the American Experience, 1865 to 1945
Course Description

Critical and historical examination of the methods and effects of public debate and other attempts to influence the attitudes, affective response, and behavior of the American people. Attention to the rhetorical features of selected issues and speakers from 1865 to 1945. [3] (US)

CMST3002 - Rhetoric of the American Experience, 1945-Present
Course Description

Critical and historical examination of the methods and effects of public debate and other attempts to influence the attitudes, affective response, and behavior of the American people. Attention to the rhetorical features of selected issues and speakers from 1945 to the present. [3] (US)

CMST3050 - Histories of Public Communication
Course Description

Methods and effects of public debate and other attempts to influence the attitudes, affective response, and behavior of speakers and audiences in situated historical contexts. [3] (HCA)

CMST3100 - Rhetoric of Social Movements
Course Description

The role of communication in the creation, development, and function of social movements. The analysis of specific rhetorical acts. The study of the arguments, patterns of persuasion, and communication strategies of selected social movements. [3] (US)

CMST3110 - Women, Rhetoric, and Social Change
Course Description

Historical influences on women's social activism and engagement with public culture; rhetorical issues facing women advocates. Rhetorical strategies used by them in the U.S. and around the globe. [3] (US)

CMST3120 - Rhetoric of U.S. Religion
Course Description

American religious discourse in historical and contemporary contexts. Religious traditions and influential rhetorical texts. Significant religious controversies. [3] (US)

CMST3130 - Rhetoric of Technoscience
Course Description

Technoscience in historical, cultural, and political contexts. Significant scientific and technological texts, both scholarly and popular. How definitions of science and technology change across time and contexts and why this matters. How rhetoric is integral to improving communication about science, technology, and the practices of science and engineering. [3] (HCA)

CMST3140 - Communication and the First Amendment
Course Description

Principles, interpretations, and controversies related to the First Amendment of the United States' Constitution. Emphasis on freedom of religion, freedom of speech, and freedom of the press. [3] (US)

CMST3150 - Law, Media, and Society
Course Description

Historical and contemporary studies of legal controversies and their mediation through print, television, film, and emergent media. Practices and politics of advocates involved in legislation and legal reform. Serves as repeat credit for CMST 3890, Section 01 in Fall 2016. [3] (HCA)

CMST3200 - Social Media and Everyday Life
Course Description

Social media as assemblage of forms and communicative practices that create sociality in everyday life. Global and ethnographic perspectives. Not open to students who earned credit for 3890 section 1 in spring 2019. [3] (P)

CMST3250W - Ethics in Science and Technology Communication
Course Description

Theories of ethics and social justice. Who communicates about science, including scientists, journalists, public relations professionals, and museum specialists; where they communicate (from journal articles to social media); and their audiences. How ethics may change across these contexts. Unique ethical dimensions such as managing hype, conveying risk, and engaging misinformation. [3] (HCA)

CMST3600 - Rhetorical Traditions
Course Description

Development of rhetorical concepts from classical Greece to the present. Significant rhetoricians and texts. The impact of context on rhetoric. [3] (HCA)

CMST3620 - Rhetoric, Culture, and Critique
Course Description

Rhetorical criticism of cultural texts and artifacts, including oratory, mass media, and other forms of public discourse. Fundamentals of effective rhetorical analysis and writing. Repeat credit for students who have completed 3620W. [3] (HCA)

CMST3620W - Rhetoric, Culture, and Critique
Course Description

Rhetorical criticism of cultural texts and artifacts, including oratory and mass media. Fundamentals of rhetorical analysis and writing. Repeat credit for students who have completed 3620. [3] (HCA)

CMST3700 - Politics and Mass Media
Course Description

Impact of mass-mediated communication on U.S. electoral politics. Pragmatic and ethical influences on the dissemination of information to voters during campaigns. [3] (HCA)

CMST3710 - Cultural Rhetorics of Film
Course Description

Film as rhetorical response to historical and cultural change. Filmic treatment of historical trauma; related genres, such as horror and melodrama. [3] (HCA)

CMST3720 - Communicating Gender
Course Description

Dominant modes of communicating gender ideology. Effects on policy, politics, and popular culture. Includes theories of rhetoric, gender, sexuality, race, and social class. [3] (P)

CMST3730 - Communication, Culture, and Consciousness
Course Description

The relationship between the primary means of communication in a culture and its influence on knowledge and subjectivity. Orality, literacy, and print, electronic, and digital communication. [3] (P)

CMST3730W - Communication, Culture, and Consciousness
Course Description

Relationship between the primary means of communication in a culture and its influence on knowledge and subjectivity. Orality and literacy. Print, electronic, and digital communication. Repeat credit for students who have earned credit for 3730. [3] (P)

CMST3740 - Rhetoric of Medicine and Health
Course Description

Cultural construction of medicine and health through narratives, metaphors, and bodily practices. Case studies in art, ethics, activism, and public controversy. Serves as repeat credit for CMST 3890, Section 01 in Spring 2016. [3] (P)

CMST3750 - Rhetoric of the Body
Course Description

Cultural construction of the body from a rhetorical perspective. Case studies include the history of disability, theories of pollution and pain, and bodily ethics. Serves as repeat credit for CMST 3890, Section 01 in Fall 2017. [3] (P)

CMST3760 - Queer Rhetorics
Course Description

Intellectual, political, and cultural developments between queer theory and communication studies. Theories of performativity and normativity; representations of LGBTQ movements; evolving understandings of queer communities in communication research. Troubling the very idea of "queer" and considering how identity markers such as race, class, gender, gender identity, and disability refine its conceptual and political possibilities. [3] (P)

CMST3800 - Communication and Media Studio
Course Description

Theory and practice of media making. Core concepts in communication studies. Student-designed projects aimed at influencing public discourse. Prerequisite: 1500. [3] (HCA)

CMST3840 - Directed Readings
Course Description

Supervised reading and writing in a selected field of the discipline under the guidance of a faculty supervisor. Consent of both the faculty supervisor and the director of undergraduate studies required. Normally open only to majors in communication studies. May be repeated for a total of 6 credits in 3850 and 3840 combined, but students may earn only up to 3 credits per semester of enrollment. [3; maximum of 6 credits total for all semesters of CMST 3850 and 3840] (No AXLE credit)

CMST3850 - Independent Study
Course Description

A research project in rhetorical criticism to be arranged with the individual instructor. Designed for students who have taken either 3000 or 3001. May be repeated for a total of 6 credits in 3850 and 3840 combined, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of CMST 3850 and 3840] (No AXLE credit)

CMST3890 - Selected Topics in Communication Studies
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

CMST4940 - Seminars in Selected Topics
Course Description

Topics of special interest. May be repeated for a total of 6 credits in 4940 and 4941 combined if there is no duplication in topic. Students may enroll in more than one section of this course per semester of enrollment. Prerequisite: 15 hours of Communication Studies. [3; maximum of 6 credits total for all semesters of CMST 4940 and 4941] (No AXLE credit)

CMST4941 - Seminars in Selected Topics
Course Description

Topics of special interest. May be repeated for a total of 6 credits in 4940 and 4941 combined if there is no duplication in topic. Students may enroll in more than one section of this course per semester of enrollment. Prerequisite: 15 hours of Communication Studies. [3; maximum of 6 credits total for all semesters of CMST 4940 and 4941] (No AXLE credit)

Communication of Science and Technology

CSET1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

CSET1500 - Communicating Science
Course Description

Theory and practice of communicating science to general audiences. Public speaking and communicating in other media. Problems of audience analysis, content, organization, delivery, and language. [3]

CSET2100 - Science Communication Tools and Techniques
Course Description

Translating technical research for a general readership. Benefits and limitations of different formats, texts, and media for telling stories about science. [3] (HCA)

CSET2130 - The Trial of Galileo and its Background
Course Description

The interdependence of cosmological theories and religious teachings from the eighth century BCE to the end of the seventeenth century. Examines scientific works and religious texts, including those of Aristotle, Thomas Aquinas, Copernicus, Luther, Galileo, and Newton. [3] (P)

CSET2200 - Crafting the Science Podcast (The Sounds of Science)
Course Description

How podcasts communicate compelling ideas and stories in science. How scientists and producers reach new audiences. Exploring existing podcasts in the media landscape. Producing original audio stories. Prerequisite: 2100. [3] (HCA)

CSET2300 - The Interview: How to Talk to a Human
Course Description

The arts of speaking and listening. The basics of a taped interview. Dynamics between interviewer and interviewee. Topics include conflict mediation, psychotherapy, negotiation, restorative justice, social work, and oral history. Practice with interview techniques. [3] (HCA)

CSET2410 - The London Art-Science Scene: Visual Science Communication for the 21st Century
Course Description

Maymester. Study and analysis of visual styles for scientific communication in world-leading London museums. Linking the exhibition experience to online media. Student development of visual scientific communication. [3] (INT)

CSET2420W - Art and Science: A Shared Past
Course Description

Art and science as ways of knowing the world. Renaissance to the present with focus on histories of observation and experiment. Alchemy, anatomy, museums, photography, and taxidermy. Organization of knowledge, labor, and creativity. [3] (P)

CSET2430 - The Craft of Computation
Course Description

Origins of computers in craft technologies. Weaving, engineering, and programming from 1800 to 1980. Issues of labor, gender, and expertise. Exploration of relationship between making and knowing through hands-on investigation. Readings combined with experimental weaving lab using programmable looms. [3] (P)

CSET2500 - Science for Everyone
Course Description

Survey of "great ideas" of science. Impact of science on daily life. Hierarchical approach of scientific concepts from basic building blocks of the universe to matter to chemical reactions to the central dogma of biology and evolution to climate change. Using scientific concepts as citizens and participating in the public discourse that is the fabric of democracy. [3] (MNS)

CSET2550 - Genetic Breakthroughs: The Promise and the Problems
Course Description

Major advancements in genetics and genomics and their impacts. Examination of scientific practices to critique both the scientific literature and the popular coverage of this work. Recognizing how science produces new questions, not definitive answers, and how these questions emerge in the context of the societies that produce them. [3] (MNS)

CSET2850 - Science, Rhetoric, and Public Controversy
Course Description

Historical and contemporary case studies of public debates over science. Rhetorical strategies of scientists and public advocates; ethical and social implications. [3] (HCA)

CSET3090 - Making Science Policy
Course Description

Interactions between science, technology, and policy, including regulatory failures, funding controversies, and the public perception of the value of scientific research. American context and comparative perspectives. Multidisciplinary approach drawing on political science, philosophy, economics, sociology, and history. [3] (SBS)

CSET3100 - Science Policy Bootcamp, from Concept to Conclusion
Course Description

Interdisciplinary service learning. Trends that shape science and innovation policy. Active policy-making. Prerequisite: Major or minor in Communication of Science and Technology or Public Policy Studies. Open to other students with permission of instructor. [3] (SBS)

CSET3130 - Rhetoric of Technoscience
Course Description

Technoscience in historical, cultural, and political contexts. Significant scientific and technological texts, both scholarly and popular. How definitions of science and technology change across time and contexts and why this matters. How rhetoric is integral to improving communication about science, technology, and the practices of science and engineering. [3] (HCA)

CSET3200W - Technical Writing
Course Description

Introduction to technical and professional composition for careers in science, business, and industry. Prerequisite: major or minor in Communication of Science and Technology. Open to other students with permission of instructor. [3] (HCA)

CSET3215W - The Art of Blogging
Course Description

Conventions of the rapidly evolving literary form of blogging. Creation and maintenance of a personal blog. Critique of online journalism across many genres, including activism, politics, science, and arts and culture. Interaction with professional bloggers. Serves as repeat credit for students who have completed ENGL 3215/3215W. [3] (HCA)

CSET3240W - Pop Science: The Art and Impact of Popular Science Writing
Course Description

Mechanics and influence of popular science writing in the 21st century. Students will critique bestselling books and award-winning journalism; develop and publish their own blogs with a focus on science, technology, and the environment; and interact with top science writers, editors, and podcasters. Not open to students who have earned credit for 3890 section 01 offered fall 2019. [3] (SBS)

CSET3241W - Ethical Questions in Communication at First Contact
Course Description

Ethical questions in science fiction literature about interactions between humankind and extraterrestrial sentient entities. Consequences of ineffective communication. Potential influence of these questions and novels on modern society. [3] (MNS)

CSET3250W - Ethics in Science and Technology Communication
Course Description

Theories of ethics and social justice. Who communicates about science, including scientists, journalists, public relations professionals, and museum specialists; where they communicate (from journal articles to social media); and their audiences. How ethics may change across these contexts. Unique ethical dimensions such as managing hype, conveying risk, and engaging misinformation. [3] (HCA)

CSET3257 - Virtual Reality Design
Course Description

Interdisciplinary, project-based introduction to Virtual Reality (VR). Creation of immersive environments. Student projects guided by faculty mentors to create real-world, consequential VR simulations relevant to, and innovative in, their respective fields. Note: This class is not open to students with a Computer Science major or minor, CS students should enroll in CS 4249. Serves as repeat credit for students who have completed UNIV 3279. [3] (MNS)

CSET3261 - Immigrant Scientists
Course Description

Impact of immigrant scientists on scientific and technological developments in the United States. Professional, political, religious, and economic aspects of immigration and immigrant scientists. Strategies to increase the positive impact of immigrant scientists in today's globalized, competitive, and complex world. [3] (US)

CSET3281W - Scientists and the State
Course Description

Ethical questions faced by scientists when working for the state. The role of the scientist as obedient bureaucrat or defender of moral principles. The scientist as traitor or hero. [3] (P)

CSET3300 - Science Filmmaking
Course Description

Short-form science filmmaking. Video production and other online science media. Research-based best practices. Corequisite: CSET 2100. [3] (HCA)

CSET3310 - Geological Filmmaking: Exploring Deep Time through Cinema
Course Description

Exploring geology through the cinematic lens across formal, material, and temporal dimensions. Collaboration and discovery of new ways of seeing the world and understanding our place in it. Course requires travel to investigation sites. Prerequisite or corequisite: EES 1510/1510L. [3] (HCA)

CSET3320W - Environmental Journalism: Investigating Climate Change
Course Description

Science, solutions, stakeholders, players, politics, history, and local impacts of climate change. Students pursue their own local reporting, investigating the effects of climate change and the emerging green economy in Nashville. Not open to students who have earned credit for 3890 section 01 offered spring 2020 or ENGL 3896 section 01 offered spring 2020 or ENGL 3896 section 01 offered spring 2019. [3] (SBS)

CSET3333 - Special Offerings
Course Description

Topics vary. May be repeated for credit if there is no duplication in topic. [3]

CSET3410 - Telling Stories with Data
Course Description

Public understanding of complex issues in the age of big-data. Data analysis using Tableau. Narratives created as personal stories, posters, games, maps, sculptures, and sound from large data sets. Emotive, aesthetic, and practical effects of different presentation methods; metrics for assessing impact. Studio approach with case studies, and hands-on work with tools and technologies. Serves as repeat credit for CSET 3890, section 01 in Fall 2020. [3] (SBS)

CSET3840 - Directed Study
Course Description

Individual research and scholarly investigation in science, engineering, or medicine. Usually conducted in a laboratory setting. May be repeated for credit more than once, but students may earn only up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

CSET3841 - Project in Science Writing and Communicating
Course Description

Presentation of scientific, engineering, or medical research, including biographical and historical background where appropriate, in one or more presentation styles (written, visual, web), under faculty supervision. May be repeated for credit more than once, but students may earn only up to 3 credits per semester of enrollment. Prerequisite: 3840 and approval of the program director. [1-3] (No AXLE credit)

CSET3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private agencies, institutions, and programs in projects related to the effective communication of scientific or technical knowledge or information. Corequisite: 3881. [1-9] (No AXLE credit)

CSET3881 - Internship Readings & Research
Course Description

Under faculty supervision, students from any discipline can gain experience with agencies, institutions, and programs in projects related to the effective communication of scientific or technical knowledge or information. [1-6] (No AXLE credit)

CSET3890 - Special Topics
Course Description

Topics as announced. May be repeated for credit more than once if there is no duplication in topic, but students may earn only 3 credits per semester of enrollment. [1-3] (No AXLE credit)

CSET3891 - Special Topics in Writing Skills
Course Description

Advanced instruction in telling scientific stories through writing. Topics vary. Counts toward the Telling Scientific Stories: Writing Skills requirement. May be repeated for credit if there is no duplication in topic. [1-3] (May count for Axle: HCA only when offered for 3 credit hours)

CSET3892 - Special topics in Science and Narrative
Course Description

Advanced instruction in telling scientific stories using tools and techniques other than traditional writing. Counts toward the Telling Scientific Stories: Science and Narrative requirement. Topics vary. May be repeated for credit if there is no duplication in topic. [1-3] (May count for Axle: HCA when offered for 3 credit hours)

CSET3893 - Special topics in Bridging the Sciences and Humanities
Course Description

Advanced instruction in topics that bridge the sciences and the humanities. Counts toward the Bridging the Sciences and Humanities requirement. Topics vary. May be repeated for credit if there is no duplication in topic. [1-3] (May count for Axle: P when offered for 3 credit hours)

CSET4998 - Honors Thesis
Course Description

Limited to students admitted to the Communication of Science and Technology Honors program. May be repeated for credit once, but students may earn only up to 3 credits per semester of enrollment. Prerequisite: 3840 and 3841. [1-3] (No AXLE credit)

CSET6200 - Crafting the Science Podcast (The Sounds of Science)
Course Description

How podcasts communicate compelling ideas and stories in science. How scientists and producers reach new audiences. Exploring existing podcasts in the media landscape. Producing original audio stories. [3]

Computer Science

CS1000 - The Beauty and Joy of Computing
Course Description

Fundamental concepts of computing including abstraction, algorithms, design, and distributed computation. Hands-on curriculum focusing on translating ideas into working computer programs and developing a mastery of practical computational literacy. The relevance and societal impact of computer science are emphasized. Students in the School of Engineering may only receive open elective credit for CS 1000. FALL, SPRING. [3]

CS1100 - Applied Programming and Problem Solving with Python
Course Description

Foundations of computing using Python. Programming fundamentals. Designing, debugging, running programs. Scalar, vector, and matrix computations for scientific computing and data science. Numeric and text processing. Basic data visualization techniques. Intended for students other than computer science and computer engineering majors. Not open to students who have earned credit for CS 1104. FALL, SPRING. [3]

CS1101 - Programming and Problem Solving
Course Description

An intensive introduction to algorithm development and problem solving on the computer. Structured problem definition, top down and modular algorithm design. Running, debugging, and testing programs. Program documentation. Not open to students who have earned credit for CS 1104 without permission. Total credit for this course and CS 1104 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. FALL, SPRING. [3]

CS1103 - Introductory Programming for Engineers and Scientists
Course Description

Problem solving on the computer. Intended for students other than computer science and computer engineering majors. Methods for designing programs to solve engineering and science problems using MATLAB. Generic programming concepts. FALL, SPRING. [3]

CS1104 - Programming and Problem Solving with Python
Course Description

An intensive introduction to algorithm development and problem solving using the Python programming language. Structured problem definition, top down and modular algorithm design. Running, debugging, and testing programs. Program documentation. Not open to students who have earned credit for CS 1100, DS 1100, or CS 1101 without permission. Total credit for this course and CS 1100 will not exceed 4 credit hours. Total credit for this course and DS 1100 will not exceed 4 credit hours. Total credit for this course and CS 1101 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. FALL, SPRING. [3]

CS1151 - Computers and Ethics
Course Description

Analysis and discussion of problems created for society by computers, and how these problems pose ethical dilemmas to both computer professionals and computer users. Topics include: computer crime, viruses, software theft, ethical implications of life-critical systems. FALL, SPRING. [3]

CS2123 - Digital Systems
Course Description

(Also listed as ECE 2123). Digital systems and hardware fundamentals of computer architectures, from logic gates and sequential logic to simple processor (e.g. von Neumann) architectures. Boolean algebra, information representation, state machines, digital system design, processors, instruction execution, I/O handling, and concepts. CS 2123 is not open to students who have earned credit for ECE 2116. Serves as repeat credit for ECE 2123. Corequisite: CS 2123L. FALL, SPRING [3].

CS2123L - Digital Systems Laboratory
Course Description

(Also listed as ECE 2123L). Laboratory for CS 2123. One three-hour laboratory per week. Serves as repeat credit for ECE 2123L. CS 2123L is not open to students who have earned credit for ECE 2116L. Corequisite: CS 2123. FALL, SPRING [1].

CS2201 - Program Design and Data Structures
Course Description

Continuation of CS 1101/1104. The study of elementary data structures, their associated algorithms and their application in problems; rigorous development of programming techniques and style; design and implementation of programs with multiple modules, using good data structures and good programming style. Prerequisite: CS 1101 or 1104. FALL, SPRING. [3]

CS2204 - Program Design and Data Structures for Scientific Computing
Course Description

Data structures and their associated algorithms in application to computational problems in science and engineering using Python. Time and memory complexity; dynamic memory structures; sorting and searching; advanced programming and program-solving strategies; efficient software library use. Prerequisite: CS 1100 or DS 1100. FALL, SPRING. [3]

CS2212 - Discrete Structures
Course Description

Survey of the mathematical tools necessary for an understanding of computer science. Sets, relations, functions, basic counting techniques, permutations, combinations, graphs, recurrence relations, simple analysis of algorithms, O-notation, Boolean algebra, propositional calculus, and numeric representation. Prerequisite: A course in computer science or two semesters of calculus. FALL, SPRING. [3]

CS2218 - Microcontrollers
Course Description

(Also listed as ECE 2218). Microprocessor and microcontroller architecture with emphasis on control applications. Usage of assembly language and interfacing with programs written in high-level languages. Interfacing and real-time I/O with microprocessors, control algorithms, and networking with microcontrollers. Serves as repeat credit for ECE 2218. Prerequisite: ECE 2116 or 2123; one of CS 1101, 1103, or 1104. Corequisite: CS 2218L. SPRING. [3].

CS2218L - Microcontrollers Laboratory
Course Description

(Also listed as ECE 2218L). Laboratory for CS 2218. A small structured project is required. One three-hour laboratory per week. Serves as repeat credit for ECE 2218L. Corequisite: CS 2218. SPRING. [1]

CS2231 - Computer Organization
Course Description

The entire hierarchical structure of computer architecture, beginning at the lowest level with a simple machine model (e.g., a simple von Neumann machine). Processors, process handling, IO handling, and assembler concepts. Graduate credit not given for computer science majors. Prerequisite: CS 2201. Corequisite: EECE 2116, EECE 2116L. FALL, SPRING. [3]

CS2281 - Computer Architecture
Course Description

(Also listed as ECE 2281). Introduction to computer architecture from a programmer's perspective. Fundamentals: Boolean logic, combinational and sequential logic circuits, information representation in binary form. The von Neumann instruction set architecture, programmer's model of a processor. Low-level programming using the C language, and its mapping to machine instructions. Memory hierarchy and performance issues. Input/output methods and advanced processors: multi-core, GPUs. CS 2281 is not open for students who have earned credit for ECE 2281 without permission. Serves as repeat credit for ECE 2281. Prerequisite: CS 2201. Corequisite: CS 2281L. FALL, SPRING [3].

CS2281L - Computer Architecture Laboratory
Course Description

(Also listed as ECE 2281L). Laboratory for CS 2281. One three-hour laboratory per week. CS 2281L is not open for students who have earned credit for ECE 2281L without permission. Serves as repeat credit for ECE 2281L. Corequisite: CS 2281. FALL, SPRING [1]

CS2860 - Introduction to Undergraduate Research
Course Description

Introduction to undergraduate research under the direction of Computer Science faculty. Students may take a maximum of 3 credit hours towards the degree. Not open to students who have earned credit for CS 3860, 3861, or 3251 without permission. Prerequisite: CS 1100 or CS 1101. [1-3 each semester]

CS3250 - Algorithms
Course Description

Advanced data structures, systematic study and analysis of important algorithms for searching; sorting; string processing; mathematical, geometrical, and graph algorithms, classes of P and NP, NP-complete and intractable problems. Prerequisite: CS 2201, CS 2212. FALL, SPRING. [3]

CS3251 - Intermediate Software Design
Course Description

High quality development and reuse of architectural patterns, design patterns, and software components. Theoretical and practical aspects of developing, documenting, testing, and applying reusable class libraries and object-oriented frameworks using object-oriented and component-based programming languages and tools. Prerequisite: CS 2201. FALL, SPRING [3]

CS3252 - Theory of Automata, Formal Languages, and Computation
Course Description

Finite-state machines and regular expressions. Context-free grammars and languages. Pushdown automata. Turing machines. Undecideability. The Chomsky hierarchy. Computational complexity. Prerequisite: CS 2212. SPRING. [3]

CS3253 - Parallel Functional Programming
Course Description

Conceptual and practical aspects of designing, implementing, and debugging parallel software programs using functional programming language features and frameworks. Systematic reuse of scalable and robust software patterns and architectures for parallel programs. Prerequisite: CS 1101, CS 3251. FALL. [3]

CS3254 - Concurrent Object-Oriented Programming
Course Description

Conceptual and practical aspects of designing, implementing, and debugging concurrent software programs using object-oriented programming language features and frameworks. Systematic reuse of scalable and robust software patterns and architectures for concurrent programs. Prerequisite: CS 1101, CS 3251. SPRING. [3]

CS3255 - Numerical Methods for Computer Science and Engineering
Course Description

Numerical and mathematical methods used in computer graphics, computational physics, robotics, vision, and learning. Algorithms for solving linear systems, determining matrix eigenstructures, nonlinear optimization, interpolation and extrapolation, integration and differentiation, solving ordinary and partial differential equations, and parallel programming. Emphasis on efficient implementations and applications. Prerequisites: MATH 2410 or MATH 2501 or MATH 2600; CS 2201 or 2204; CS 2212. Corequisites: MATH 2400 or MATH 2420 or MATH 2610. FALL [3]

CS3258 - Introduction to Computer Graphics
Course Description

2D rendering and image-based techniques, 2D and 3D transformations, modeling, 3D rendering, graphics pipeline, ray-tracing, and texture-mapping. Prerequisite: MATH 2400, 2410, 2501 or 2600; CS 3251. SPRING. [3]

CS3259 - Computer Animation
Course Description

Principles and techniques of computer animation. Topics include storyboarding, camera control, skeletons, inverse kinematics, splines, keyframing, motion capture, dynamic simulation, particle systems, facial animation, and motion perception. Students work in groups on the design, modeling, animation, and rendering of a computer animation project. Prerequisite: MATH 2400, 2410, 2501, or 2600; CS 2201. FALL. [3]

CS3262 - Applied Machine Learning
Course Description

Fundamentals of machine learning with emphasis on practical applications to data science problems. Supervised learning (linear and logistic regression, decision trees, support vector machines, neural networks, and deep learning), unsupervised learning (feature selection, data clustering, dimensionality reduction); ethical principles and social implications of machine learning. Does not count as CS Depth elective towards the Computer Science major or minor. Prerequisite: One of CS 1100, 2201, or 2204; one of BME 3200, BSCI 3270, CE 3300, DS 2100, ECON 1500 or 1510, MATH 2810 or 2820 or 2821, PSY 2100, PSY-PC 2110, or SOC 2100. FALL, SPRING. [3]

CS3265 - Database Management Systems
Course Description

Logical and physical organization of databases. Data models and query languages, with emphasis on the relational model and its semantics. Data independence, security, integrity, concurrency. Prerequisite: CS 2201. [3]

CS3270 - Programming Languages
Course Description

General criteria for design, implementation, and evaluation of programming languages. Historical perspective. Syntactic and semantic specification, compilations, and interpretation processes. Comparative studies of data types and data control, procedures and parameters, sequence control, nesting, scope and storage management, run-time representations. Problem solving using non-standard languages. Prerequisite: CS 2201; CS 2231 or CS 2123 or ECE 2123 or CS 2281 or ECE 2281. FALL, SPRING. [3]

CS3274 - Modeling and Simulation
Course Description

General theory of modeling and simulation of a variety of systems: physical processes, computer systems, biological systems, and manufacturing processes. Principles of discrete-event, continuous, and hybrid system modeling, simulation algorithms for the different modeling paradigms, methodologies for constructing models of a number of realistic systems, and analysis of system behavior. Computational issues in modeling and analysis of systems. Stochastic simulations. Prerequisite: CS 2201. [3]

CS3276 - Compiler Construction
Course Description

Review of programming language structures, translation, loading, execution, and storage allocation. Compilation of simple expressions and statements. Organization of a compiler including compile-time and run-time symbol tables, lexical scan, syntax scan, object code generation, error diagnostics, object code optimization techniques, and overall design. Use of a high-level language to write a complete compiler. Prerequisite: CS 3270. [3]

CS3281 - Principles of Operating Systems I
Course Description

Resource allocation and control functions of operating systems. Scheduling of processes and processors. Concurrent processes and primitives for their synchronization. Use of parallel processes in designing operating system subsystems. Methods of implementing parallel processes on conventional computers. Virtual memory, paging, protection of shared and non-shared information. Structures of data files in secondary storage. Security issues. Case studies. Prerequisite: CS3251; CS 2231 or CS/ECE 2123 or CS/ECE 2281. FALL, SPRING. [3]

CS3282 - Principles of Operating Systems II
Course Description

Projects involving modification of a current operating system. Lectures on memory management policies, including virtual memory. Protection and sharing of information, including general models for implementation of various degrees of sharing. Resource allocation in general, including deadlock detection and prevention strategies. Operating system performance measurement, for both efficiency and logical correctness. Two hours lecture and one hour laboratory. Prerequisite: CS 3281. [3]

CS3860 - Undergraduate Research
Course Description

Open to qualified majors with consent of instructor and adviser. No more than 6 hours of CS 3860 and/or 3861 may be counted towards the computer science major. Prerequisite: CS 3251. [1-3 each semester]

CS3861 - Undergraduate Research
Course Description

Open to qualified majors with consent of instructor and adviser. No more than 6 hours of CS 3860 and/or CS 3861 may be counted towards the computer science major. Prerequisite: CS 3251. [1-3 each semester]

CS3891 - Special Topics
Course Description

[Variable credit: 1-3 each semester]

CS3892 - Special Topics
Course Description

Fulfills project course requirement in CS major. [3]

CS4239 - Cyber-Physical Systems: Foundations and Project
Course Description

(Also listed as ECE 4239). Foundations of cyber-physical systems and the Internet-of-Things. Model-based engineering of cyber-physical systems, including modeling of physical and computational systems, design and implementation techniques, analysis and verification. Includes modeling and analysis assignments, and project using a simulator and a real-time computer system. Serves as repeat credit for ECE 4239. Prerequisite: CS 3281 or ECE 4375 or CS 4375; MATH 2300 or 2500; MATH 2410 or 2501 or 2600. SPRING. [3]

CS4247 - Data Visualization
Course Description

Visualization analysis and design. Perception, color and multiple-view design, interaction, and task analysis for visualization. Techniques for visualizing geographic data, networks, hierarchical and high-dimensional data, and uncertainty. Prerequisites: CS 3250, 3251; MATH 2410 or 2501 or 2600; MATH 2810 or 2820. [3]

CS4249 - Projects in Virtual Reality Design
Course Description

Students work in groups on specification, design, and construction of complex immersive 3D virtual environments. Includes modeling, interaction, usability, rendering, perception, and tracking. Prerequisite: CS 3251. FALL. [3].

CS4259 - Projects in Machine Learning
Course Description

Students work in small groups on the specification, design, implementation, and testing of a sizeable machine learning or deep learning project. Projects can be either application- or algorithm-oriented. Prerequisites: CS 4262, CS 4267, or ECE 4363/5363. SPRING. [3]

CS4260 - Artificial Intelligence
Course Description

Principles and programming techniques of artificial intelligence. Strategies for searching, representation of knowledge and automatic deduction, learning, and adaptive systems. Survey of applications. Prerequisite: CS 3250, CS 3251; MATH 2810 or 2820 or 3640. FALL. [3]

CS4262 - Foundations of Machine Learning
Course Description

Theoretical and algorithmic foundations of supervised learning, unsupervised learning, and reinforcement learning. Linear and nonlinear regression, kernel methods, support vector machines, neural networks and deep learning methods, instance-based methods, ensemble classifiers, clustering and dimensionality reduction, value and policy iteration. Explainable AI, ethics, and data privacy. Prerequisite: CS 3251; one of MATH 2810, 2820, or 3640; one of MATH 2410, 2500, 2501, or 2600. SPRING. [3]

CS4266 - Topics in Big Data
Course Description

Principles and practices of big data processing and analytics. Data storage databases and data modeling techniques, data processing and querying, data analytics and applications of machine learning using these systems. Prerequisite: CS 3251. SPRING. [3]

CS4267 - Deep Learning
Course Description

Models, algorithms, mathematical tools, and machine learning concepts used in deep learning. Modern practical deep feedforward, convolutional, and recurrent networks. Regularization for deep learning and optimization. Practical design methods. Prerequisite: CS 3250, CS 3251; MATH 2410 or 2600; MATH 2810 or 2820. SPRING. [3]

CS4269 - Project in Artificial Intelligence
Course Description

Students work in small groups on the specification, design, implementation, and testing of a sizeable AI software project. Projects (e.g., an "intelligent" game player) require that students address a variety of AI subject areas, notably heuristic search, uncertain reasoning, planning, knowledge representation, and learning. Class discussion highlights student progress, elaborates topics under investigation, and identifies other relevant topics (e.g., vision) that the project does not explore in depth. Prerequisite: CS 4260. SPRING. [3]

CS4275 - Error Analysis in Safety Critical Systems
Course Description

Case study-based course examining errors in safety critical systems, including healthcare and aviation. Errors explored from multiple perspectives, specifically computer science and systems engineering. Prerequisite: CS 3251. SPRING. [3]

CS4277 - Cyber Security
Course Description

Software issues, secure software design, attacks and detection, identity, sessions, human security mistakes, and security auditing. Prerequisite: CS 3251. FALL. [3]

CS4278 - Principles of Software Engineering
Course Description

The nature of software. The object-oriented paradigm. Software life-cycle models. Requirements, specification, design, implementation, documentation, and testing of software. Object-oriented analysis and design. Software maintenance. Prerequisite: CS 3251. FALL. [3]

CS4279 - Software Engineering Project
Course Description

Students work in teams to specify, design, implement, document, and test a nontrivial software project. The use of CASE (Computer Assisted Software Engineering) tools is stressed. Prerequisite: CS 4278. SPRING. [3]

CS4284 - Computer Systems Analysis
Course Description

Techniques for evaluating computer system performance with emphasis upon application. Topics include measurement and instrumentation techniques, benchmarking, simulation techniques, elementary queuing models, data analysis, operation analysis, performance criteria, case studies. Project involving a real computer system. Prerequisite: CS 3281. [3]

CS4285 - Network Security
Course Description

Principles and practice of network security. Security threats and mechanisms. Cryptography, key management, and message authentication. System security practices and recent research topics. Prerequisite: CS 4283. [3]

CS4286 - Reverse Engineering for Cybersecurity
Course Description

Cybersecurity from a practical standpoint. Topics include x86 assembly and reverse engineering, vulnerability analysis, and binary exploitation. Types of security defenses used by modern systems. Malware analysis and Windows-based exploits. Prerequisite: CS 3281. SPRING. [3]

CS4287 - Principles of Cloud Computing
Course Description

Fundamental concepts of cloud computing, different service models, techniques for resource virtualization, programming models, management, mobile cloud computing, recent advances, and hands-on experimentation. Prereq: CS 3281. [3]

CS4288 - Web-based System Architecture
Course Description

Core concepts necessary to architect, build, test, and deploy complex web-based systems; analysis of key domain requirements in security, robustness, performance, and scalability. Prerequisite: CS 3251. FALL. [3]

CS4289 - Project in Web-Based Software Architecture
Course Description

Project-based course building on core concepts necessary to architect, build, test, and deploy complex web-based systems. Students form teams, propose project ideas, architect their solutions, and build the initial minimum viable project for their application. In-class discussions focus on advanced topics in web-development. Prerequisite: CS 4288. SPRING. [3]

CS4352 - Social Network Analysis
Course Description

Explores recent research on the analysis of social networks and on models and algorithms to abstract their properties and make predictions. Random graph models, network centrality measurements, computational methods of link prediction/recommender systems, clustering and classification on graphs, and network diffusion. Deep learning on graphs including network embedding and graph neural network models and applications. Prerequisites: CS 3250, CS 3251. [3]

CS4375 - Embedded Systems
Course Description

(Also listed as ECE 4375). Design and implementation of embedded computer-based systems. Programming for real-time systems and the Internet of Things. Embedded system modeling, design, analysis, and implementation using real-time and event-driven techniques. A structured project is required. Serves as repeat credit for ECE 4375. Prerequisite: ECE 2218, CS 2201. Corequisite: CS 4375L. FALL. [3]

CS4375L - Embedded Systems Laboratory
Course Description

(Also listed as ECE 4375L). Design and implementation of embedded computer-based systems. Programming for real-time systems and the Internet of Things. Embedded system modeling, design, analysis, and implementation using real-time and event-driven techniques. A structured project is required. Serves as repeat credit for ECE 4375L. Prerequisite: ECE 2218, CS 2201. Corequisite: CS 4375. FALL. [1]

CS4376 - Foundations of Human Computer Interaction
Course Description

Skills and concepts of Human-Computer Interaction (HCI) to enable the design of systems that effectively meet human needs. Social, cognitive, behavioral and contextual aspects of information systems. Informational dimensions of the human-computer interface, and other user-centered design concepts. Includes conceptual problems in HCI and design approaches to interactive prototype construction and evaluation techniques. Prerequisite: CS 3250 or 3251. FALL. [3]

CS4383 - Computer Networks
Course Description

(Also listed as ECE 4383). Computer communications. Network (Internet) architecture. Algorithms and protocol design at each layer of the network stack. Cross-layer interactions and performance analysis. Network simulation tools. Lab and programming assignments. Serves as repeat credit for ECE 4383. Course not open to students who have earned credit for ECE 4371 without permission. Prerequisite: CS 3281 or ECE 4375. [3]

CS4959 - Computer Science Seminar
Course Description

Elements of professional engineering practice, professional education and lifelong learning, intellectual property and software patents, open source and crowd source software development, liability, soft risk safety and security, privacy issues, interdisciplinary teams and team tools, professional organization, careers, entrepreneurship, human computer interaction. Prerequisite: CS 3251. FALL [1]

Conducting

MCON3000 - Conducting
Course Description

An introductory course of study stressing the fundamentals of movement and gesture as they relate to style, articulation, phrasing, tempo, cueing, etc. Score reading at the piano. Prerequisite: MUSC 2200 or MUTH 2220, MUKH 1134 or 2134, and MUTH 2400. FALL, SPRING. [2]

MCON3010 - Instrumental Conducting
Course Description

Expansion of basic skills to include longer and more complex musical structures; expanded ability in analysis, memorization, and interpretation; significant independent preparation. Prerequisite: MCON 3000 and consent of instructor. [2] SPRING. Fountain.

MCON3020 - Choral Conducting
Course Description

Choral conducting and rehearsal techniques, score reading and analysis, methods, and materials of choral music. Prerequisite: MCON 3000 and consent of instructor. SPRING. [2] Biddlecombe. (Offered alternate years.)

MCON3030 - Advanced Conducting Studies
Course Description

Score preparation, ensemble techniques, rehearsal strategies. Core repertoire. Physical awareness. Ensemble conducting opportunity. Prerequisite: MCON 3010 or 3020. [2]

MCON3040 - Score Reading I
Course Description

Introduction to score reading at the keyboard in preparation for advanced study in conducting. Development of sight-reading and choral rehearsal skills; two- to four-part score reading. Permission of instructor required. [1]

MCON3041 - Score Reading II
Course Description

Builds on skills learned in Score Reading I. Reading two- to four-parts at the keyboard in all clefs in preparation for advanced score-reading. Continued development of eye-hand coordination and sight-reading skills. Systematic introduction of transposing orchestral instruments. Prerequisite: MCON 3040 and permission of instructor. [1]

MCON3042 - Score Reading III
Course Description

Introduction to full orchestral score reading drawn primarily from early-mid Classical repertoire. Development of reading within instrument families and playing full scores with increasing complexity. Prerequisite: MCON 3041 and permission of instructor. [1]

MCON3043 - Score Reading IV
Course Description

Continuation of the skills learned in MCON 3042 to include reading full orchestral scores from the Romantic-21st Century repertoire. Study of common graduate conducting entrance audition repertoire with emphasis on fluency of playing on the keyboard while following a conductor. Prerequisite: MCON 3042 and permission of instructor. [1]

MCON3050 - Directed Study in Conducting I
Course Description

Development and execution of a program of study in conducting under the direction of a member of the department. Must be with a mentor other than the student's professor for MCON 3030. Prerequisite: MCON 3041; MUSC 3106; and departmental consent for senior year of the Conducting Concentration. [1]

MCON3051 - Directed Study in Conducting II
Course Description

Continued development and execution of a program of study in conducting under the direction of a member of the department. Prerequisite: MCON 3050 and departmental consent. [1]

Culture, Advocacy, & Leadership

CAL1002 - Fundamentals of Culture, Advocacy, and Leadership
Course Description

Subject matter and methods of public engagement. Concepts and practices related to citizenship, civil society, and social change. Offered on a graded basis only. [3] (HCA)

CAL1800 - Speaking, Leading, Engaging
Course Description

Speaking and communicating for community engagement. Historical and contemporary case studies. Skill-building for public advocacy. Offered on a graded basis only. [3] (US)

CAL2175 - Conspiracy Culture in America
Course Description

Conspiracy theories in American culture and history. Topics include witch trials, anti-Semitism, anti-Catholicism, the red scare, UFOs, and the Kennedy assassination. Relation of conspiracy theories to broader cultures of knowledge. [3] (US)

CAL2300 - Responsible Advocacy in a Complicated World
Course Description

Theory and practice of advocacy, community engagement, and shared authority across multiple disciplines. Navigating ethical concerns in community-engaged advocacy work. Offered on a graded basis only. [3] (P)

CAL2700 - Religion, Politics, and American Culture
Course Description

Political role of religion and religious role of politics. Christian Nationalism; religious social activism; atheism in America; emergent religions and political resistance; immigration, religion, and community. [3] (US)

CAL2800 - Global Perspectives on American Cultures
Course Description

Production and representation of culture. International, hemispheric considerations of America. Nationalism, conquest, colonialism, race, gender, and inequality. [3] (INT)

CAL3850 - Independent Readings & Research
Course Description

Independent readings and/or research. May be repeated for a total of 6 credits if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters] (No AXLE credit)

CAL3890 - Special Topics
Course Description

May be repeated for credit if there is no duplication in topic. [3] (No AXLE credit)

CAL4000 - Practicum and Internship Experience
Course Description

Coursework to accompany practicum/internship requirement of CAL major. Discussion and application of concepts related to leadership and community engagement. [3] (No AXLE credit)

CAL4500 - American Futures
Course Description

Reinvestigation of key concepts around culture, advocacy, and leadership. Student-led seminar and research workshop culminating in public-facing research project. Offered on a graded basis only. [3] (US)

Data Science

DS1000 - Data Science: How Data Shape Our World
Course Description

Accessible, engaging, applied introduction to data science for students from all colleges and majors. Data summary and data visualization; causality and correlation; sampling, resampling, and uncertainty; prediction with linear regression; classification, clustering, and machine learning; ethics. Topics introduced with real-world datasets using a statistical programming language for hands on experience in data science. Enrollment limited to freshmen, sophomores, and juniors. [3]

DS1100 - Applied Programming and Problem Solving with Python
Course Description

Foundations of computing using Python. Programming fundamentals. Designing, debugging, running programs. Scalar, vector, and matrix computations for scientific computing and data science. Numeric and text processing. Basic data visualization techniques. Intended for students other than computer science and computer engineering majors. Not open to students who have earned credit for CS 1104 or CS 2204 without permission. Total credit for this CS/DS 1100 and CS 1104 will not exceed 4 credit hours. Total credit for CS/DS 1100 and CS 2204 will not exceed 5 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3]

DS2100 - Statistics for Data Science
Course Description

Introduction to descriptive and inferential statistics using computational and resampling approaches from data science. Probability, measurement, random variables, distributions, central tendency, variability, confidence intervals, measures of uncertainty, estimation, prediction, hypothesis testing and inference, replicability, power, effect size, t-tests, correlation, univariate ANOVA, and simple linear regression. Examples from wide range of disciplines. [3]

DS3100 - Fundamentals of Data Science
Course Description

Obtaining, manipulating, processing, cleaning, wrangling, visualizing, and analyzing data; effectively communicating results from data analyses. Imputation, multiple linear and logistic regression, regularization, dimensionality reduction, maximum likelihood, model selection, general linear model. Ethics, privacy, and security in data science. Statistical computing for data science in R. Prerequisites: One of: CS 1100, 1101, or 1104. One of: DS 2100, BME 2400, BSCI 3270, CE 3300, ECON 1500, ECON 1510, MATH 2810, MATH 2821, PSY 2100, PSY-PC 2110, or SOC 2100. [4]

DS3262 - Applied Machine Learning
Course Description

Fundamentals of machine learning with emphasis on practical applications to data science problems. Supervised learning (linear and logistic regression, decision trees, support vector machines, neural networks, and deep learning), unsupervised learning (feature selection, data clustering, dimensionality reduction); ethical principles and social implications of machine learning. Intended for students other than computer science majors. Prerequisites: One of CS 1100, CS 2201, or CS 2204; one of DS 2100, BME 2400, BSCI 3270, CE 3300, ECON 1500 or 1510, MATH 2810 or 2820 or 2821, PSY 2100, PSY-PC 2110, SOC 2100. [3]

DS3850 - Independent Study in Data Science
Course Description

Development of research project by individual student under direction of a faculty sponsor. Project must involve (1) development, evolution, or implementation of data science methods, (2) application of data science to one or more fields in the physical, life, or social sciences, engineering, arts, or humanities, or (3) study impact of data on society and its institutions. Consent of both the faculty sponsor and Director of the DS minor required. [1-4]

DS3851 - Independent Study in Data Science
Course Description

Continuation of DS 3850 under the direction of same or different faculty sponsor. [1-4]

DS3891 - Special Topics in Data Science
Course Description

May be repeated for credit if there is no duplication of topic. [3].

Digital Fabrication

DF2100 - Rapid Prototyping
Course Description

Fundamentals of design, prototyping, and entrepreneurship for all disciplines. Practical aspects of modeling and 3D printing functional parts. Machine elements and metrology to facilitate the design process. Operation of 3D printers and other CNC machines through CAM, slicers, and G-code. Leveraging AI to produce lighter, stronger, and more compact models (generative design). Students print their own prototypes and iterate on their designs. FALL, SPRING. [3].

DF3860 - Undergraduate Research in Digital Fabrication
Course Description

Supervised projects employing digital fabrication tools and techniques under the direction of a faculty sponsor culminating in a report of the activities and findings. Consent of both the faculty sponsor and the Director of the DF minor is required. Prerequisite: DF 2100. [1-3; maximum of 6 hours total]

DF3890 - Special Topics
Course Description

[1-3]

Digital Humanities

DHUM1100 - Introduction to Digital Humanities
Course Description

Hands-on experience with essential technologies including digital archives, geospatial humanities, and data and text analysis. History, sub-fields, and major debates; quantitative and qualitative research; intersections of race, gender, and technology; and software studies. Offered on a graded basis only. [3] (HCA)

DHUM1200 - Digital Public Humanities
Course Description

Digital technologies engaging the public in the preservation, sharing, and appreciation of cultural heritage, both historical and contemporary. Collections and exhibits, geospatial humanities, 3D environments, storytelling, crowdsourcing, social media, and smartphone applications. Democratic openness, histories of cultural appropriation, and marginalization. Offered on a graded basis only. [3] (HCA)

DHUM1300 - Computational Humanities
Course Description

Computational analysis of texts, images, video, and sound recordings. Text analysis and data analysis using Python and R, fundamentals of machine learning, creating and using databases, and statistical modeling for humanities research. Debates and controversies surrounding computational humanities. Writing about computational research for humanities audiences. No prior statistical or computing experience is necessary. Offered on a graded basis only. [3] (MNS)

Divinity

DIV7119 - Models of Interfaith Engagement
Course Description

The contemporary “interfaith” sector is expanding exponentially as more organizations, persons, and governments realize the importance of constructive engagement among diverse “religious” traditions. This course maps major models of interfaith engagement (e.g., dialogue, faith-based diplomacy/peacebuilding, service leadership, organizing, etc.) and equips students with the practical and social ethical knowledge needed to be an interfaith leader in varied institutional spaces (e.g., congregations, non-profits, social movements, universities, chaplaincy, and government). With an eye to analysis of power, conflict, and ethical potential, we explore specific historical and contemporary case studies such as the Parliament of World Religions (beginning in 1863); the Black Freedom movement and Black Muslims in the 1950s and 1960s; the Second Ecumenical Council of the Vatican in the 1960s; and the rise of service leadership and community organizing models in the last fifty years in the living wage campaigns, broad-based organizing, and Movements for Black Lives. We engage the emerging field of literature on the interfaith movement, particularly in the U.S., along with questions addressing the categories of “religion” and “secularism” in interfaith movements. [3] Ms. Snarr and Mr. Stauffer

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Earth and Environmental Sciences

EES1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

EES1030 - Oceanography
Course Description

An introduction to the geology, biology, chemistry, and physics of the marine environment. [3] (MNS)

EES1030L - Oceanography Laboratory
Course Description

Laboratory to accompany 1030. Corequisite: 1030. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1030. [1] (No AXLE credit)

EES1070 - Volcanoes: Impacts on Earth and Society
Course Description

How magmas form and volcanoes erupt; eruption processes and their hazards to society. Volcanic influence on human history and the evolution of the Earth. NNot open to students who have earned credit for EES 1111-03 without permission. Total credit for this course and EES 1111-03 will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (MNS)

EES1080 - Earth and Atmosphere
Course Description

The science of the atmosphere: principles of weather and climate; the atmosphere as part of the Earth system; weather forecasting; hurricanes, tornadoes, and severe storms; human impacts, such as air pollution and climate change. [3] (P)

EES1081 - Earth and the Atmosphere
Course Description

The science of the atmosphere: principles of weather and climate; the atmosphere as part of the Earth system; weather forecasting; hurricanes, tornadoes, and severe storms; human impacts, such as air pollution and climate change. [3] (MNS)

EES1081L - Earth and the Atmosphere Lab
Course Description

Laboratory to accompany 1081. Corequisite: 1081. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1081. [1] (No AXLE credit)

EES1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

EES1140 - Ecology, Evolution, and Climates through Time
Course Description

Biological responses to global climate and environmental change through geologic time. Causes of climate change and its impact on biodiversity, including extinction implications. Interactions between climate, environments, and the evolution of organisms, emphasizing vertebrates during the past 65 million years. [3] (MNS)

EES1400 - Iceland's Geology
Course Description

Processes that shape Icelandic landscapes. Volcanoes, glaciers, rivers, ocean, climate. History of interaction between the environment and Icelanders. Introduction at Vanderbilt, two weeks Icelandic field experience; laboratory includes both classroom and field work. Prerequisite: 1510, 1070, or 1111. [4] (MNS)

EES1510 - The Dynamic Earth: Introduction to Geological Sciences
Course Description

Processes that have changed the earth. Relation between these processes and their products (e.g., earthquakes, minerals and rocks, mountains, oceanic features); interactions between processes affecting the solid, liquid, and gaseous components of earth; impact on humans. [3] (MNS)

EES1510L - Dynamic Earth Laboratory
Course Description

Laboratory to accompany 1510. Corequisite: 1510. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1510. [1] (No AXLE credit)

EES2110 - Introduction to Climate Change
Course Description

Science, policy, history, and causes of climate change on Earth in the last 2 million years; evidence of human impacts on climate since 1850; future climate change and its economic, social, and ecological consequences; economic, technological, and public policy responses. Not open to students who have earned credit for EES 3310 without permission. [3] (MNS)

EES2114 - Above and Below the Surface: The Caribbean between Climate Change and Tourism
Course Description

Caribbean islands, history, tourism, and ecology. Human-environment interactions. Under water and above water ecologies; Scuba diving and environmental research. Development of interdisciplinary critical thought. Applied research. [3] (INT)

EES2150 - Science, Risk, and Policy
Course Description

Assessment and management of deadly risks: comparison of markets, regulatory agencies, and courts for managing risks; cultural and scientific construction of risk; psychology of risk perception; case studies such as Hurricane Katrina, mad cow disease, and air pollution. [3] (P)

EES2220W - History of Antarctic Exploration and Governance
Course Description

Scientific and economic drivers motivating explorers. Late 19th and early 20th century expeditions; geology and scientific discoveries. The Antarctic Treaty and modern governance. Serves as repeat credit for students who completed EES 4891 02 in Fall 2022. [3] (HCA)

EES2309W - Mountains to the Sea: Perspectives on Society, Politics, and the Environment
Course Description

How physical environments shape politics, religion, economy, cultural practices and infrastructure. Climate, soils, natural hazards, transportation, water, food, and mineral resources. Contestation over climate change and pollution. [3] (INT)

EES2510 - Earth Systems through Time
Course Description

Effects of feedbacks between the geologic cycles on the lithosphere, hydrosphere, biosphere, and atmosphere at diverse intervals in the Earth's history. Present and future implications. Interpretations of evidence recorded in Earth materials. Three hours of lecture and one laboratory per week. Repeat credit for students who have completed 1020. Prerequisite: 1030 and 1030L, 1081 and 1081L, or 1510 and 1510L. [4] (MNS)

EES2550 - Earth Materials
Course Description

Solid materials that make up the earth: rock, soil, and sediment, with emphasis on the minerals that are their major constituents. Hand specimen, optical, and X-ray methods of description and identification. Physical and chemical processes that form and modify earth materials and the use of these materials in interpreting earth processes of the past and present. Field trips. Three lectures and one laboratory per week. Prerequisite: 1030 and 1030L, 1081 and 1081L, or 1510 and 1510L. [4] (MNS)

EES2580 - Earth System Dynamics
Course Description

Transport and motion in Earth's systems. Conservation of mass, energy, and momentum over space and time. Earth's processes that lead to and regulate the transport of these quantities. Quantifying Earth's dynamical behavior and describing it with models. Prerequisite: 1030/1030L, 1081/1081L, or 1510/1510L. Co-requisite: MATH 1100, 1201, or 1301. [3] (MNS)

EES3220 - Life Through Time
Course Description

Ecology, classification, and evolution of important groups of fossils, emphasizing invertebrates. Change in marine ecosystems through geologic time. Causes and effects of rapid evolution events and mass extinctions. Three hours of lecture and one laboratory period per week. Corequisite: 2510, 2550, 2580, or CHEM 1602. [4] (MNS)

EES3260 - Petrology
Course Description

Nature, distribution, and theories of origin of igneous, metamorphic, and sedimentary rocks. Mineralogy as a function of rock-forming conditions. Laboratory emphasis on description and interpretation of rocks, using hand sample and microscope techniques. Field trips. Three lectures and one laboratory period per week. Prerequisite: 2550. [4] (MNS)

EES3280 - Environmental Geochemistry
Course Description

Chemistry of Earth's surface including the interaction of solids, liquids, and gases. Earth's biogeochemical cycles. Natural and anthropogenic transformations in the Critical Zone. Collection and analysis of environmental samples in the field. Corequisite 2510, 2550, or 2580. [4] (MNS)

EES3310 - Global Climate Change
Course Description

Scientific principles and policy applications. Earth's past; evidence of human impact; future climate change; and economic, social, and ecological consequences. Economic, technological, and public policy responses. Serves as repeat credit for EES 2110. Prerequisite: one of 1030, 1080, 1510, BSCI 1510, CHEM 1601, ECON 1010, ES 1401 or PHYS 1501, 1601, 1901. [4] (MNS)

EES3330 - Sedimentology
Course Description

The origin and composition of sedimentary particles, their transportation to the site of deposition, actual deposition, and the processes involved in lithifying sediments into solid rock. Emphasis on interpretation of ancient source areas and depositional environments. Terrigenous, carbonate, and other rock types will be studied. Field trips. Three lectures and one laboratory period. Corequisite 2510, 2550, or 2580. [4] (MNS)

EES3333 - Climate and Society: Drowning Cities
Course Description

Description pending. [3]

EES3340 - Structural Geology and Rock Mechanics
Course Description

Principles of rock deformation from microscopic to mountain range scales. Stress and strain; mechanisms of deformation; geometries of faulting and folding. Interpreting geologic maps and constructing cross sections. Applications to tectonics, natural resources, and earthquakes. Corequisite: 2510, 2550, or 2580. [4] (MNS)

EES3841 - Directed Study
Course Description

Readings in related fields and/or laboratory research in pursuit of a scholarly project conceived and executed under the supervision of a faculty member. Open to senior majors and graduate students or by consent of the department chair. Does not count toward minimum requirements for the major. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 2 credits per semester of enrollment. [1-2] (No AXLE credit)

EES3842 - Directed Study
Course Description

Readings in related fields and/or laboratory research in pursuit of a scholarly project conceived and executed under the supervision of a faculty member. Open to senior majors and graduate students or by consent of the department chair. Does not count toward minimum requirements for the major. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 2 credits per semester of enrollment. [1-2] (No AXLE credit)

EES3851 - Independent Study
Course Description

Readings with related field and/or laboratory research in pursuit of a scholarly project conceived and executed under the supervision of a faculty member. Open to senior majors and graduate students. Other students must have consent of department chair. Does not count toward minimum requirements for the major. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

EES3852 - Independent Study
Course Description

Readings with related field and/or laboratory research in pursuit of a scholarly project conceived and executed under the supervision of a faculty member. Open to senior majors and graduate students. Other students must have consent of department chair. Does not count toward minimum requirements for the major. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

EES3865 - Field Investigations
Course Description

Content varies according to location and disciplinary focus. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3] (MNS)

EES3875 - Community Engaged Science
Course Description

Partnering with community organizations addressing real-world problems. Communication, reflection, collaborative problem solving, and environmental justice. May include field and lab work and community meetings. Final projects presented to community audience. Serves as repeat credit for EES 4891, section 01 in spring 2022. Prerequisite 2510, and junior or senior standing. [3] (MNS)

EES3880 - Internship Training in EES
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private organizations focused on work in Earth and Environmental Sciences. Credit hours earned are based upon actual work performed at the internship site. A minimum of 3 credit hours in background readings and research must be completed in 3881 concurrently with and regardless of the number of hours earned in 3880. A thorough/substantial research paper or report must be submitted at the end of the semester during which the internship is completed. These credit hours may NOT count for the EES major or minor. Normally, a 2.7 grade point average, 6 hours of prior work in EES, and prior approval of a specific plan of work by the director of undergraduate studies in EES are required. Offered on a Pass/Fail basis only and must be taken concurrently with 3881. Co-requisite: 3881. [1-9] (No AXLE credit)

EES3881 - Internship Readings and Research in EES
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private organizations focused on work in Earth and Environmental Sciences. Credit hours earned are based upon readings or research supervised by EES faculty to lend some intellectual foundation to the internship experience. A minimum of 3 credit hours in background readings and research must be completed in 3881 concurrently with and regardless of the number of hours earned in 3880. A thorough/substantial research paper or report must be submitted at the end of the semester during which the internship training is completed. These credit hours may not count for the EES major or minor. Normally, a 2.7 grade point average, 6 hours of prior work in EES, and prior approval of a specific plan of work by the director of undergraduate studies in EES are required. [3-6]

EES4231 - Paleobiology
Course Description

Macroevolutionary processes as observed through the fossil record. Inference of evolutionary relationships, physiology, reproduction, behavior, and ecology. Fundamentals of paleobiology, paleoecology, paleoclimates, macroecology, biogeography, geology, geochemistry, anthropology, and conservation paleobiology. Effects of climate change and human impacts, in deep-time. Prerequisite: BSCI 1511. [3] (MNS)

EES4233 - Conservation Biology
Course Description

Ecological, evolutionary, social, and economic aspects of biodiversity loss and ecosystem disruption due to human activities. Climate change, habitat fragmentation, species overexploitation, and invasive species. Sustainable development, habitat restoration, and species reintroduction. Prerequisite: 2510. [3] (MNS)

EES4238 - Ecology
Course Description

Population biology, evolutionary ecology, community structure, with emphasis on species interactions, including competition, predation, and symbiosis. Prerequisite: 2510. [3] (MNS)

EES4300 - Earth's Natural Resources
Course Description

Natural resource formation, production, and use. Geologic controls on resource distribution. Analysis of historical trends and prediction of future resource availability. Environmental impacts of mining, use, and disposal. Fossil fuels, alternative energy, nuclear fuels, metals, industrial minerals, water, soil, and elements used in agriculture. Synthesis of knowledge from the geosciences, chemistry, engineering, and economics. Prerequisite: junior standing. [3] (MNS)

EES4420 - Geomorphology
Course Description

Analysis of the Earth's landforms, their morphology, history, and the processes that form them. The building of relief and its subsequent transformation by geologic processes on hillslopes, rivers, coasts, wetlands, and glaciers. The natural history and human impacts on land forms. Field trips. Familiarity with basic physics (mechanics) is expected. Prerequisite: 1030 or 1081 or 1510. [3] (MNS)

EES4440 - Glacial Geology
Course Description

Metamorphism of snow and ice; mass balance at snow and ice surfaces; and rheology of ice. Destruction and creation of landscapes by glacial movement and debris. Response of ice bodies to changes in climate; physical, chemical, and biological evidence of climate change; and methods of paleoclimate reconstruction. Glacial impacts on societies through sea-level, hazards, coastlines, and water supplies. Prerequisite: 1030 or 1081 or 1510. [3] (MNS)

EES4480 - Mass Extinctions
Course Description

Synthesizing causes, consequences, and dynamics of past mass extinction events. Using fossil records to interpret current and future trends in biodiversity loss. Prerequisite: 2510 or 2580 [3] (MNS)

EES4550 - Transport Processes in Earth and Environmental Systems
Course Description

Principles of conservation and constitutive transport laws; classic and emerging styles of modeling natural systems. Prior study of basic calculus (functions, derivatives, integrals) and physics (mechanics) is expected. Prerequisite: senior or graduate standing with a major in Earth and Environmental Sciences, Biological Sciences, Chemistry, Mathematics, Physics, or the School of Engineering. [3] (MNS)

EES4600 - Geochemistry
Course Description

Application of chemistry to study the distribution and cycling of elements in the crust of the earth. Includes chemical bonding and crystallization, phase rules and phase diagrams, chemical equilibria, theories on the origin of elements, earth, ocean, atmosphere, and crust. Prerequisite: 2550 and CHEM 1602. [3] (MNS)

EES4650 - Physics of the Climate System
Course Description

Physical processes affecting the climate system. Global energy balance of Earth and planets. Surface temperature and how it is regulated. Electromagnetic radiation and its interaction with atmospheric gases, clouds, and aerosols. Ocean heat storage, cloud and precipitation processes, and the impact of sea and inland ice on temperature. Processes that govern the water and carbon cycle. [3] (MNS)

EES4680 - Paleoclimates
Course Description

Fluctuations in Earth's climate with an emphasis on the past 700 million years. Forcings and feedback that influence climate and drive change. Techniques used to reconstruct past climate change using marine and terrestrial geologic deposits and geochronologic methods. Prerequisite: 2110 and ENVS 1101; or corequisite: 2510, 2550, or 2580. [3] (MNS)

EES4750 - Sustainability: An Environmental Science Perspective
Course Description

Principles, problems, and solutions of environmental sustainability, with a focus on the links among the environment, society, and economy. Prerequisite: junior standing. [3] (MNS)

EES4760 - Agent- and Individual-Based Computational Modeling
Course Description

Applications in natural, social, and behavioral sciences and engineering. Designing, programming, and documenting models. Using models for experiments. Examples from environmental science, ecology, economics, urban planning, and medicine. Familiarity with basic statistics and proficiency in algebra are expected. [3] (MNS)

EES4820 - Paleoecological Methods
Course Description

Tools used to interpret past environments and climates, including plant microfossils, pollen and phytoliths, vertebrate morphology, and dental microwear and mesowear. Geochemical tools such as stable isotopes and rare earth elements. Integrating methods for paleontological and anthropological studies, including the use of databases and meta-analyses. Readings from primary sources. Prerequisite: 1030 or 1081 or 1510. [3] (MNS)

EES4830 - Volcanic Processes
Course Description

Nature, behavior, and origin of volcanoes. Magmatic processes that lead to eruptions. Eruptive processes and volcano construction. Impacts of volcanism on Earth's surface environment. Prerequisite: 3260. [3] (MNS)

EES4891 - Special Topics
Course Description

Topics vary. May be repeated for credit more than once by permission of the director of undergraduate studies. Students may enroll in more than one section of this course each semester. Prerequisite: 1030 or 1510 or 1081. [1-3] (No AXLE credit)

EES4951 - Career Pathways in the Earth and Environmental Sciences
Course Description

Interactions with professionals to learn about their personal journeys and current opportunities. Goals, knowledge, and skills to create materials and professional plans. Open only to junior EES majors and minors. [1] (No AXLE credit)

EES4961 - Senior Seminar
Course Description

Integrating concepts and information from diverse fields. Offered on a graded basis only. Limited to seniors in the final semester of the major. [1] (No AXLE credit)

EES4996 - Senior Honors Seminar I
Course Description

Research methods and scientific writing and communication, including work towards senior honors project, thesis, and oral presentation. Open only to senior departmental honors candidates. Does not count toward minimum requirements for major. Corequisite: 4998 [1] (No Axle Credit)

EES4997 - Senior Honors Seminar II
Course Description

Research methods and scientific writing and communication, including work towards senior honors project, thesis, and oral presentation. Open only to senior departmental honors candidates. Does not count toward minimum requirements for major. Prerequisite: 4996, Corequisite: 4999 [1] (No AXLE Credit)

EES4998 - Senior Honors Research
Course Description

Independent research under faculty supervision that culminates in an oral presentation and written thesis submitted to the faculty. Open only to departmental honors candidates. Does not count toward minimum requirements for the major. [2] (No AXLE credit)

EES4999 - Senior Honors Research
Course Description

Independent research under faculty supervision that culminates in an oral presentation and written thesis submitted to the faculty. Open only to departmental honors candidates. Does not count toward minimum requirements for the major. [2] (No AXLE credit)

Economics

ECON1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

ECON1010 - Principles of Macroeconomics
Course Description

The role of scarcity and prices in allocating resources. National income, fluctuations in unemployment and price level, monetary and fiscal policy. [3] (SBS)

ECON1020 - Principles of Microeconomics
Course Description

The behavior of households and business in markets. Competition, monopoly, and rivalry in product and factor markets. Equilibrium. Income distribution. International trade. Prerequisite: 1010. [3] (SBS)

ECON1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

ECON1500 - Economic Statistics
Course Description

The use of quantitative data in understanding economic phenomena. Probability, sampling, inference, and regression analysis. Not open to students who have earned credit for 1510. Total credit for this course and 1510 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: Math 1100, 1200, or 1300. [3] (SBS)

ECON1510 - Intensive Economic Statistics
Course Description

Quantitative techniques in economic analysis. Probability sampling, inference, and multiple regression. Not open to students who have earned credit for 1500. Total credit for this course and 1500 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: MATH 1100, 1200 or 1300. [3] (SBS)

ECON2100 - Labor Economics
Course Description

Introduction to labor markets in the United States. Foundations and applications of labor supply and demand, immigration and immigration policies, investment in human capital, wage policies of employers, minimum wage legislation, labor market discrimination and remedial programs, effects of labor unions, and unemployment. Prerequisite: 1010 and 1020. [3] (SBS)

ECON2150 - Economic History of the United States
Course Description

Economic development of the United States from the Colonial period to the present. Interrelated changes in economic performance, technology, institutions, and governmental policy. Prerequisite: 1010 and 1020. [3] (US)

ECON2160 - Strategic Analysis
Course Description

Introduction to sequential and simultaneous games. Backward induction, equilibrium, pure and mixed strategies. Cooperation and conflict, the prisoner's dilemma, threats, promises, and credibility. Brinkmanship, uncertainty, the role of information, auction design, bidding strategies, and bargaining. Voting and agenda control. Prerequisite: 1010 and 1020. [3] (SBS)

ECON2170 - Environmental Economics
Course Description

Public policies to address market failures. Energy policy, climate change, biodiversity, globalization, and population growth. Sustainable economic activity, recycling, valuing environmental amenities, addressing ethical dilemmas, and resolving disputes. Offered on a graded basis only. Prerequisite: 1010 and 1020. [3] (SBS)

ECON2180 - Sports Economics
Course Description

Intercollegiate and professional sports leagues. Competitive balance, player labor markets, and owner capital markets. Theories of league expansion, rival leagues, franchise relocation, and sports venue finance. Comparisons of international sports leagues. Offered on a graded basis only. Prerequisite: 1010 and 1020. [3] (SBS)

ECON2210 - Economics and Legal Institutions
Course Description

Theoretical study of legal institutions. Economic consequences of legal frameworks as they pertain to individual and group behavior. Prerequisite: ECON 1020. [3] (SBS)

ECON2220 - Latin American Development
Course Description

Economic growth and structural change. Historical legacies, import-substitution, debt crisis, inflation, and macroeconomic stabilization. Regional and national economic integration, migration, and conflict. Poverty, inequality, and policies. No credit for graduate students in economics. Prerequisite: 1010. [3] (SBS)

ECON2260 - International Economics
Course Description

Causes, consequences, and conduct of economic interactions among sovereign nations. Trade in goods and services; international monetary and financial interactions; winners and losers; exchange rates and the balance of payments; economic organizations. Offered on a graded basis only. Prerequisite: 1010 and 1020. [3] (SBS).

ECON2300 - Money and Banking
Course Description

A study of commercial banks and other intermediaries between savers and investors in the United States, including the government's role as money creator, lender, and regulator of private credit, and the effects of financial institutions on aggregate economic activity. Prerequisite: 1010 and 1020. [3] (SBS)

ECON2340 - Plunder and Pillage: The Economics of Warfare and Conflict
Course Description

International and domestic economic conflict. Offensive and defensive strategies. Fortifications, strategic bombing, and conscription. Corporate takeovers, bargaining failures, and labor strikes. Prerequisites: 1010 and 1020. [3] (SBS)

ECON2350 - Health Care Policy
Course Description

Health care markets in the United States. Supply and demand, social insurance policies, pharmaceuticals, malpractice, and health care reform. Prerequisite: 1010 and 1020. [3] (SBS)

ECON2890 - Special Topics
Course Description

Topics of special interest. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 1010 and 1020. [3] (No AXLE credit)

ECON3010 - Intermediate Microeconomic Theory
Course Description

Development of the techniques of analysis for problems of resource allocation. Theories of choice and production for individual economic agents in competitive and monopolistic environments. Behavior of markets. Determination of prices, wages, interest, rent, and profit. Income distribution. Not open to students who have earned credit for 3012. Total credit for this course and 3012 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1010, 1020, and either MATH 1100, 1200, or 1300. [3] (SBS)

ECON3012 - Microeconomics
Course Description

Consumer choice and firm behavior from the fundamentals of preference and production theory. Calculus-based optimization. Price-determination, analysis of market equilibrium, perfect competition and the effect of market power in monopolies and oligopolies. Efficiency, welfare, and market failures. Not open to students who have earned credit for 3010. Total credit for this course and 3010 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1010, 1020, and either MATH 1201 or 1301. [3] (SBS)

ECON3020 - Intermediate Macroeconomic Theory
Course Description

National income accounting and analysis. Classical, Keynesian, and contemporary models determining national income, employment, liquidity, price level, and economic growth. Not open to students who have earned credit for 3022. Total credit for this course and 3022 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1010, 1020, and either MATH 1100, 1200, or 1300. [3] (SBS)

ECON3022 - Macroeconomics
Course Description

Contemporary models of national income, employment, interest rates, price level, and economic growth. Decisions underlying consumption and investment behavior, as well as the effect of government policies. Not open to students who have earned credit for 3020. Total credit for this course and 3020 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1010, 1020, and either MATH 1201 or 1301. [3] (SBS)

ECON3032 - Applied Econometrics
Course Description

Quantitative economic analysis with emphasis on multivariate regression. Measurement, specification, estimation, inference, prediction, and interpretation of econometric models. Experience with data and computer applications. Not open to students who have earned credit for 3035 or 3050. Total credit for this course and 3035 will not exceed 3 credit hours. Total credit for this course and 3050 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1020; either 1500, 1510, or both MATH 2820L and either MATH 2810 or 2820; and either Math 1201 or 1301. [3] (SBS)

ECON3035 - Econometric Methods
Course Description

Properties and problems in estimating economic relationships with multiple regression. Statistical and econometric theory to address empirical questions. Hands-on experience with economic data analysis with programming in statistical software. Not open to students who have earned credit for 3032 or 3050. Total credit for this course and 3032 will not exceed 3 credit hours. Total credit for this course and 3050 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1020, either 1500, 1510, or both MATH 2820L and either MATH 2810 or 2820; and either Math 1201 or 1301. [3] (SBS)

ECON3050 - Introduction to Econometrics
Course Description

Quantitative methods of economic analysis. Measurement, specification, estimation, and interpretation of economic models. Econometric computation using microcomputers. Not open to students who have earned credit for 3032 or 3035. Total credit for this course and 3032 will not exceed 3 credit hours. Total credit for this course and 3035 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Not offered after AY 2019-20. Prerequisite: 3010 or 3012 and either 1500 or 1510; or MATH 2820L with either MATH 2810 or MATH 2820. [3] (SBS)

ECON3100 - Wages, Employment, and Labor Markets
Course Description

Theories and empirical evidence of the determinants of wages and employment. Compensating differentials, education and human capital, migration and labor mobility, discrimination, incentive pay, wage inequality. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3110 - Poverty and Discrimination
Course Description

Theories and empirical evidence concerning inequality, poverty, and discrimination, and their relationship to economic growth. Evaluation of anti-poverty and anti-discrimination policies. Prerequisite: 3012; and one of 3032, 3035. [3] (SBS)

ECON3150 - Topics in the Economic History of the U.S.
Course Description

Analysis of major issues and debates in American economic history. Prerequisite: 3010 or 3012. [3] (US)

ECON3160 - Economic History of Europe
Course Description

Sources of Western European economic progress. Organization of overseas merchant empires, origins of the Industrial Revolution, the role of property rights, demographic patterns, and changing living standards. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3170 - Environmental and Natural Resource Economics
Course Description

Theories of benefit-cost analysis, externalities, and public goods applied to study environmental market failures. Empirical methods applied to nonmarket valuation of environmental amenities and policy evaluation. Theories of optimal control and use applied to study energy, forests, fisheries, water, and climate change. Prerequisites: 3012; 3032 or 3035. [3] (SBS)

ECON3200 - Public Finance
Course Description

Theories of the state and collective decisions, fiscal federalism, public goods and externalities. Tax theory: equity, efficiency, and growth. Taxation of goods, factors, and corporations. Cost-benefit analysis. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3210 - Economics of Education
Course Description

Models of educational investment and role of government in education provision. Effects of education on social and economic outcomes, the behavior of institutions that produce education, and the design and implementation of public policies that affect the level and distribution of educational resources. Prerequisite: ECON 3012. [3] (SBS)

ECON3230 - Urban Economics
Course Description

Urban growth, development of suburbs, location of firms, housing markets, transportation, property taxes, and local government services. Offered on a graded basis only. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3250 - Industrial Organization
Course Description

Models of market structure and behavior from monopoly and oligopoly to perfect competition. Strategic interaction between a firm and its customers and between a firm and its competitors. Firm practices and government policies that promote or hinder the efficient operation of markets. Offered on a graded basis only. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3270 - Economics of Information and Communications Technology
Course Description

The Internet, cloud computing, social networks, e-commerce, and Internet telephony as influencers of commerce and consumer welfare. Streaming content, big data, informatics, and open source software in economic perspective. Property rights, competition, and regulation in cyberspace. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3300 - Financial Instruments and Markets
Course Description

Theoretical and empirical approaches to the analysis of monetary and other financial instruments. Portfolio analysis, interest rate risk, and financial futures and options markets. Prerequisite: Either 3010 or 3012; and either 3020 or 3022. [3] (SBS)

ECON3330 - Economics of Risk
Course Description

Decision making under risk and uncertainty. Expected utility, risk aversion, and the value of information. Investments, insurance, and lotteries. Moral hazard and adverse selection. Prospect theory. Serves as repeat credit for ECON 3893-01 in Fall 2016. Prerequisite: 3010 (or 3012) with either 1500 or 1510; or Math 2820L with either Math 2810 or Math 2820. [3] (SBS)

ECON3350 - Economics of Health
Course Description

Demand for health and health care. Value of health, life, and medical innovation. Health insurance. Supply and organization of health care services. U.S. health care reforms. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3600 - International Trade
Course Description

International trade in goods and services. Patterns of trade; gains and losses from trade, tariffs, and other commercial policies; economic integration; and international factor movements. Offered on a graded basis only. Prerequisite: 3010 or 3012. [3] (SBS)

ECON3610 - International Finance
Course Description

Economics of international monetary, financial, and macroeconomic relationships. Effects of monetary and fiscal politics in open economies, balance of payments, exchange rate determination, and international monetary institutions. Prerequisite: 3020 or 3022. [3] (SBS)

ECON3650 - Development Economics
Course Description

Determinants of national economic growth for pre-industrial and newly industrial countries. Inequality and poverty. Imperfect credit markets and microfinance. Political constraints and corruption. Policy issues relevant to developing economics. Prerequisite: 3010 or 3012, and either 1500, 1510, 3032, 3035, or 3050. [3] (INT)

ECON3698 - Junior Honors Research
Course Description

Honors thesis proposal under the supervision of a thesis adviser and the Director of Honors. Open only to junior majors with the approval of the Director of Honors. Prerequisite: 3010 or 3012. [1] (No AXLE credit)

ECON3700 - Economic Growth
Course Description

Determinants of macroeconomic growth. Mathematical theories of exogenous and endogenous growth. Comparison of growth rates across countries and time. The effect of growth rates on economic well-being. The effect of tax rates. Prerequisite: 3010 or 3012, and 3020 or 3022. [3] (SBS)

ECON3750 - Econometrics for Big Data
Course Description

Econometric methods for analyzing large datasets. Model selection, regularization, classification, resampling, tree-based methods, and support vector machines. Forecasting stock prices, prediction of housing prices, and determination of wages. Prerequisite: 3010 or 3012; either 3032, 3035, 3050; or MATH 2820L with MATH 2810 or 2820. [3] (SBS)

ECON3851 - Independent Study in Economics
Course Description

A program of independent reading in economics, arranged in consultation with an adviser. Limited to students having written permission from an instructor and the director of undergraduate studies. Prerequisite: 3010 or 3012. [Variable credit: 1-3 each semester, or 1-6 for departmental honors candidates; maximum of 12 hours in 3851 and 3852 combined for departmental honors students; maximum of 6 hours in 3851 and 3852 combined for other students] (No AXLE credit)

ECON3852 - Independent Study in Economics
Course Description

A program of independent reading in economics, arranged in consultation with an adviser. Limited to students having written permission from an instructor and the director of undergraduate studies. Prerequisite: 3010 or 3012. [Variable credit: 1-3 each semester, or 1-6 for departmental honors candidates; maximum of 12 hours in 3851 and 3852 combined for departmental honors students; maximum of 6 hours in 3851 and 3852 combined for other students] (No AXLE credit)

ECON3893 - Selected Microeconomic Topics
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3010 or 3012. [3] (No AXLE credit)

ECON3894 - Selected Macroeconomic Topics
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3020 or 3022. [3] (No AXLE credit)

ECON4050 - Topics in Econometrics
Course Description

Emphasis on applications. May include generalized method of moments, empirical likelihood, resampling methods, and nonparametric techniques. Prerequisite: 3032, 3035, or 3050. [3] (SBS)

ECON4110 - Macroeconomic Models for Policy Analysis
Course Description

Mathematical models of overlapping generations, rational expectations, and open economies with price rigidities applied to social security, government debt, exchange rates, monetary policy, and time inconsistent optimal policy. Prerequisite: 3020 or 3022. [3] (SBS)

ECON4210 - Law and Economics
Course Description

The influence of legal rules and institutions on the behavior of individuals and on economic efficiency and equity. Applications from civil procedure as well as property, contract, tort, and criminal law. Offered on a graded basis only. Prerequisite: 3010 or 3012 and either 1500, 1510, 3032, 3035, or 3050. [3] (SBS)

ECON4220 - Social Choice Theory
Course Description

Strategic and non-strategic social choice theory. Preference aggregation, formal models of voting, and matching. Prerequisite: 3010 or 3012 or PHIL 3003 or any Mathematics course numbered 2500 or above. [3] (SBS)

ECON4230 - Political Economy of Elections
Course Description

Microeconomic and game-theory analysis of political institutions and elections. Study of party and candidate positioning; efficiency of political competition; polarization; and information provision and processing. Prerequisite: 3012 or PSCI 2259. [3] (SBS)

ECON4240 - Political Economy of Institutions and Development
Course Description

Theoretical mathematical and empirical models; nations' prosperity or poverty. Institutions as factors for disparity in economic development. Familiarity with basic methods of regression analysis is expected. No credit for students who completed ECON 3893 section 01 offered fall 2022. Prerequisite or corequisite: ECON 3012 or PSCI 2259. [3] (SBS)

ECON4260 - Game Theory with Economic Applications
Course Description

Rational decision-making in non-cooperative, multi-person games. Single play and repeated games with complete and incomplete information. Economic applications of games, such as auctions, labor-management bargaining, pricing and output decisions in oligopoly, and common property resources. Prerequisite: 3010 or 3012. [3] (SBS)

ECON4280 - Experimental Economics
Course Description

Design, methodology, and interpretation of economic experiments. Laboratory experiments with applications in labor markets, discrimination, and voluntary contributions. Offered on a graded basis only. Not open to students who have earned credit for 3893 section 01 offered fall 2019. Prerequisite: 3010 or 3012; and 1500 or 1510, or MATH 2820L with MATH 2810 or MATH 2820. [3] (SBS)

ECON4510 - Seminar in Macroeconomic Policy
Course Description

Intensive study of three or four current problems in economic policy. Studies in topics such as macroeconomic policy for the year ahead, financial market issues, international economic policy issues. Repeat credit for students who have completed 4510W. Limited to majors in economics and public policy. Prerequisite: 3010 or 3012; and 3020 or 3022. [3] (SBS)

ECON4510W - Seminar in Macroeconomic Policy
Course Description

Intensive study of three or four current problems in economic policy. Studies in topics such as macroeconomic policy for the year ahead, financial market issues, international economic policy issues. Repeat credit for students who have completed 4510. Limited to majors in economics and public policy. Prerequisite: 3010 or 3012; and 3020 or 3022. [3] (SBS)

ECON4520W - Seminar on Globalization
Course Description

Causes of global economic integration. Winners and losers. World Trade Organization, international environmental treaties, labor and capital markets. U.S. leadership. Offered on a graded basis only. Prerequisite: 3010 or 3012; and either 1500, 1510, 3032, 3035, or 3050. [3] (SBS)

ECON4530 - Seminar in Microeconomic Policy
Course Description

Intensive study of three or four current problems in microeconomic policy. Repeat credit for students who have completed 4530W. Limited to majors in economics and public policy. Prerequisite: 3010 or 3102. [3] (SBS)

ECON4530W - Seminar in Microeconomic Policy
Course Description

Intensive study of three or four current problems in microeconomic policy. Repeat credit for students who have completed 4530. Limited to majors in economics and public policy. Prerequisite: 3010 or 3012. [3] (SBS)

ECON4540W - Economics of Conflict
Course Description

Economic relationships that appropriate value from other parties. War, crime, litigation, family quarrels, and rent-seeking. The visible hand, principal-agent problems, and negative sum games. Prerequisite: 3010 or 3012. [3] (SBS)

ECON4550 - Seminar in Sports Economics
Course Description

Issues and debates. Offered on a graded basis only. Prerequisite: 2180, and 3010 or 3012. [3] (SBS)

ECON4981 - Honors Seminar
Course Description

Discussion of selected topics and senior thesis research. Open only to seniors in the departmental honors program. Prerequisite: 3010 or 3012. [1] (No AXLE credit)

ECON4982 - Honors Seminar
Course Description

Discussion of selected topics and senior thesis research. Open only to seniors in the departmental honors program. Prerequisite: 3010 or 3012. [1] (No AXLE credit)

ECON4998 - Senior Thesis
Course Description

Limited to and required of all candidates for departmental honors. Prerequisite: 3010 or 3012. [1-3] (No AXLE credit)

ECON4999 - Senior Thesis
Course Description

Limited to and required of all candidates for departmental honors. Prerequisite: 3010 or 3012. [1-3] (No AXLE credit)

Education

EDUC1001 - Commons iSeminar
Course Description

Commons iSeminar, a 1-hour small seminar experience, open to first-year students. Students and faculty will collaboratively explore a specialized topic in depth in this university-wide seminar sponsored by The Ingram Commons. General Elective credit only. [1]

EDUC1220 - Society, the School, and the Teacher
Course Description

Introduces the relationship between society's goals and those of the school. Studies the community setting and the school, the social, political, and instructional organization of a school, and the roles and values of a teacher. Field experience. [3]

EDUC1227 - Society, the School, and the Teacher
Course Description

Introduces the relationship between society's goals and those of the school. Studies the community setting and the school, the social, political, and instructional organization of a school, and the roles and values of a teacher. Writing intensive. [3]

EDUC2160 - Cultural Diversity in American Education
Course Description

(Also listed as SPED 2060) Focuses on cultural diversity and the ways in which it has been defined and treated in the American educational system. An interdisciplinary perspective informs the course, with particular attention to history, sociology, psychology, anthropology, and educational literatures. [3]

EDUC3120 - Children in Families and Schools
Course Description

Examines the cultural, social-political, historical, and collaborative influences of families and educational institutions on children's development and learning. Emphasis on understanding family-school connections and developing partnerships to foster maximum growth of children. [3]

EDUC3140 - Learning and Development in Early Childhood Education
Course Description

Applying an understanding of learning and development, students examine a variety of early childhood curriculum models based upon their assumptions about learning and development. Students consider how the role of the classroom teacher and the establishment of classroom norms are shaped by each curricular model. An imbedded 20-hour practicum enables students to see different curricular models and to interact with preschool children. [3]

EDUC3212 - Introduction to Reading Processes and Assessment
Course Description

Develops an understanding of reading and of elementary students as readers. Examines theoretical models, approaches, and the development of reading in elementary classrooms. Candidates will investigate how children learn to read, explore assessments that reveal student understanding of reading, and apply this knowledge in scaffolding reading with individual students. Provides informal assessment and teaching experiences within a school setting. [3]

EDUC3214 - Theory and Methods of Reading Instruction in Elementary Schools
Course Description

Examines approaches, strategies, and methods for teaching reading in elementary classrooms with attention paid to philosophies and principles of instructional practice designed to individualize instruction and support literacy development. Discusses underlying concepts and theories pertaining to literacy instruction and relates these to classroom practice. Although grounded in the philosophy that reading and writing are not discrete entities, the course focuses on reading. Prerequisite: EDUC 3212; Corequisite: EDUC 3215 and EDUC 3216. [3]

EDUC3215 - Language Arts in Elementary Schools
Course Description

Examines the nature of language development in the elementary school years with attention paid to principles and practices for teaching English language arts, particularly related to writing instruction. Consideration of instructional practices designed to individualize instruction and support literacy development will occur. Prerequisite: EDUC 3212; Corequisite: EDUC 3214 and EDUC 3216. [3]

EDUC3216 - Practicum in Teaching Elementary Reading and Language Arts
Course Description

: Field experiences in a variety of elementary classroom settings designed to provide practical experience and reflection on the teaching of reading and the language arts. Prerequisite: EDUC 3212; Corequisite: EDUC 3214 and EDUC 3215. [1]

EDUC3240 - Practicum in Elementary Science and Social Studies
Course Description

Field experiences in a variety of school, grade level, and instructional settings, designed to integrate and apply teaching skills developed in the elementary science and social studies methods courses. Corequisite: SCED 3240 and SSED 3240. [1]

EDUC3270 - Managing Instructional Settings
Course Description

Examines several planning and management philosophies and a variety of practices for use with early childhood and/or elementary school students. [2]

EDUC3280 - Planning & Assesmnt Strategies
Course Description

Students will explore the research-based curriculum design process of backwards planning by learning about the theory behind teaching toward a course Big Idea, essential questions, and identified content standards. Students will also learn how to identify and write equity-based classroom assessments and lesson plans. The course has a field-embedded component that requires students to spend 9 to 12 hours in the field. [3]

EDUC3310 - Classroom Ecology
Course Description

This course explores how teachers make design choices for an environment that creates optimal conditions for student learning. Design elements include social and cultural contexts of learning, social/emotional learning, motivations for learning, and appropriate assessments. This is an introductory general methods class. Students will take specific methods classes in their area of teaching. [3]

EDUC3537 - Scholarly Writing and Thinking
Course Description

Students will engage in academic thinking processes such as identifying productive research questions about timely topics, evaluating and synthesizing literature, and composing academic writing in a range of genres (e.g., annotated bibliographies and literature reviews). Students will be able to view, emulate, and practice writing processes that are a part of the production of conference proposals, theoretical commentaries, and/or empirical research articles. Through drafting, revising, editing, and workshopping with peers and instructors, each student will receive ample feedback on their written work and develop the necessary skills for professional research and writing. [3]

EDUC3547 - Language Curriculum Design
Course Description

This course focuses on language curriculum design, considering multilingual learners' interests and goals, relevant research in the field of language teaching, curricular coherence, and language teaching philosophies. Principles of language curriculum design are applied to the evaluation, adaptation, supplementation, and creation of curriculum that can be used in future language teaching contexts with learners across the lifespan. [3]

EDUC3575 - Multimodality & Multilingualism
Course Description

Digital communication today often involves the use of multiple modes—including visuals, sounds, text, and movement—to make meaning. In this graduate seminar, we will explore theoretical perspectives and current educational research within the rapidly expanding field of multimodality. We will devote particular attention to understanding how multilingual learners make meaning across modes and languages in and out of school. In addition to critically engaging with scholarship, you will also gain experience analyzing and creating various digital products that interweave multiple languages and modalities. We will also consider the pedagogical implications for designing instruction that effectively integrates technology to support emergent bilingual students' language and literacy learning. Along with gaining a broad understanding of the scholarship at the intersections of multimodality and multilingualism, this course will also provide opportunities for students to delve into specific topics and applications of interest. [3]

EDUC3620 - Social and Philosophical Aspects of Education
Course Description

Exploration of the interaction between contemporary social problems and various philosophies in relation to educational theory, policy, and practice. [3]

EDUC3720 - Principles of Multilingual Education
Course Description

This survey course examines theoretically and empirically supported practices to support equitable education of multilingual students, many of whom are designated as "English Language Learners" in US school systems. Introductions to the following topics are included: second language acquisition, instructional strategies, program models, assessment, and ways to support students in mobilizing their cultural and linguistic resources. This course does not fulfill any ESL endorsement requirement. [3]

EDUC3730 - Foundations of Multilingual Education
Course Description

This course focuses on the historical, political, legal, theoretical, and educational influences that shape learning for multilingual learners who are learning English as an additional language. Emphasis is placed on (1) investigating and mobilizing multilingual learners' resources in instruction, (2) analyzing relevant policies and programs that shape the experiences and outline rights and responsibilities of students, families, and educators, and (3) developing a personalized philosophy with plans for advocacy, collaboration and ongoing professional learning that can improve educational opportunities for multilingual learners. [3]

EDUC3731 - Practicum for Teaching English Language Learners I
Course Description

A fieldbased practicum working with students who are English language learners. Experience will include use of students' native languages and/or ESL instructional components. Corequisite EDUC 3730. [1]

EDUC3740 - Methods for Educating Multilingual Learners
Course Description

This course focuses on bilingual and linguistically appropriate curriculum materials and instruction for multilingual students across the disciplines (English language arts, science, mathematics, social studies). The course emphasizes research-based practices that support multilingual students labeled as “Multilingual learners (MLs)” including but not limited to (1) communicative language teaching, (2) the Sheltered Instruction Observation Protocol (SIOP), (3) translanguaging, and (4) learners’ strategy use. Corequisite: 1 hour of EDUC 3742. [3]

EDUC3742 - Practicum: Multilingual Learners
Course Description

In this practicum, students will work in a classroom with multilingual learners and a mentor teacher. Students will observe their mentor teacher, support learners, plan and implement lessons, reflect on their instruction, analyze factors that support learning, discuss and act on feedback, and make plans for ongoing professional learning. Students will meet regularly with a university supervisor. This course is required for ESL Endorsement and TESOL Certificate. Corequisite with EDUC 3740. [3]

EDUC3750 - Educational Linguistics and Second Language Acquisition
Course Description

This course explores multiple components of language and focuses on the understanding and application of linguistic theory and second language acquisition to the teaching of English learners. Topics covered include the structure of the English language, language as a system, language acquisition and development, language variation, theories of second language acquisition, and instructional and applied opportunities for fostering oral and written discourse. This course integrates linguistics knowledge from a variety of languages, emphasizes the use of multiple languages in multilingual learners’ experiences, and fosters an asset-centered, sociolinguistics approach to language study and instruction. [3]

EDUC3760 - Assessment of Multilingual Learners
Course Description

This course focuses on theoretical and practical aspects of assessing bilingual and multilingual students learning English in a variety of contexts. Emphasis is placed on theories and issues affecting the assessment of English learners; critical engagement with a range of assessment tools and types; and practical applications for the construction and implementation of language learner assessment. [3]

EDUC3763 - Practicum for Teaching English Language Learners III
Course Description

A field-based practicum working with students who are English language learners. Experience will include use of students' native languages and/or ESL instructional components. Corequisite: EDUC 3760. [13]

EDUC3770 - Language Socialization and Variation
Course Description

This course provides a sociocultural view of language development and uses. Specific topics covered include examination of components and characteristics of language structure as they relate to different language variations, discourse patterns, and ways in which they relate to discourse differences among social groups. The students in this class will analyze the socio-political nature of language standards and "standard” usage and investigate ways in which teachers can integrate language variations and linguistic diversity into teaching practices. Prerequisite: EDUC 3750 or equivalent course.[3]

EDUC3790 - Qualitative Language Analysis
Course Description

This Qualitative Language Analysis course introduces students to some of the characteristics and approaches to designing and conducting qualitative language research analysis. Students will gain experience in various qualitative analysis techniques for purposes of either carrying out a research project or designing courses and materials derived from the results of their analysis. [3]

EDUC3850 - Independent Study in Education
Course Description

Semi-independent study on selected topics in education. Consent of instructor required. May be repeated. [1-3]

EDUC3860 - Honors Research in Education
Course Description

Individual programs of reading on the conduct of research studies in education. May be repeated. Consent of instructor required. [1-3]

EDUC3861 - Initial Fieldwork in Educational Studies
Course Description

Field-based application of Education Studies coursework, providing students an opportunity to integrate and apply theory and practice to learning in out-of-school settings. Students are placed in culturally diverse education settings and are given opportunities to engage in practitioner observations, learning design and implementation, and guided reflective practice. [3]

EDUC3862 - Advanced Fieldwork in Educational Studies
Course Description

Advanced experience for Education Studies coursework, providing students an opportunity to develop independent experience in out-of-school settings and to apply at an advanced level theory and practice to learning in out-of-school settings. Students are placed in culturally diverse education settings and are given opportunities to engage in practitioner observations, learning design and implementation, and guided reflective practice. [3]

EDUC3871 - Practicum in Secondary Education I
Course Description

Field experience in middle and secondary school settings. Designed for secondary education majors in their sophomore year. Corequisite: PSY-PC 2550 [3]

EDUC3872 - Practicum in Secondary Education II
Course Description

Field experience in middle and secondary school settings. Designed for secondary education majors in their junior year. [1]

EDUC3890 - Special Topics in Education
Course Description

Exploration of special issues on topics related to education. May be repeated for credit with change of topic. [1-3]

EDUC4950 - Capstone Fieldwork in Educational Studies
Course Description

Capstone experience for Education Studies coursework, providing students an opportunity to develop independent experience in out-of-school settings and to apply at an advanced level theory and practice to learning in out-of-school settings. Students are placed in culturally diverse education settings and are given opportunities to engage in practitioner observations, learning design and implementation, and guided reflective practice. Capstone experiences should include opportunities for students to develop, direct or implement learning opportunities with increasing independence from field partners. [6]

EDUC4951 - Student Teaching in Early Childhood
Course Description

Observation and teaching experience for students seeking PreK-3 licensure. Undergraduate credit only. Prerequisite: admission to student teaching. [9]

EDUC4952 - Student Teaching in the Elementary School
Course Description

Observation and teaching experience in elementary schools. Undergraduate credit only. Prerequisite: admission to student teaching. [9]

EDUC4953 - Student Teaching in the Secondary School
Course Description

Observation and teaching experience in secondary schools. Undergraduate credit only. Prerequisite: admission to student teaching. [9]

EDUC4954 - Student Teaching in Education and Special Education
Course Description

(Also listed as SPED 4954) Observation, participation, and classroom teaching for undergraduate students in any area of education combined with any area of exceptionality. Placements are dependent on license and endorsement areas. Prerequisite: Admission to student teaching. [9]

EDUC4961 - Student Teaching Seminar: Early Childhood
Course Description

Seminar to accompany EDUC 4951. A $300.00 Teacher Performance Assessment fee is associated with this course. [3]

EDUC4962 - Student Teaching Seminar: Elementary
Course Description

Seminar to accompany EDUC 4952. A $300.00 Teacher Performance Assessment fee is associated with this course. [3]

Electrical & Computer Engineering

ECE2112 - Circuits
Course Description

Development of basic electrical circuit element models, signal representations, and methods of circuit analysis. Matrix methods and computer techniques. Demonstrations of physical components, measurement techniques, and transient phenomena. Corequisite: MATH 2300; PHYS 1602. FALL, SPRING. [3]

ECE2112L - Circuits Laboratory
Course Description

Experiments in electrical theory, circuits, and components, including linear circuit theorems, operational amplifiers, comparators, oscillators, multivibrators, data converters, diode circuits, transistors as digital switches, sensors and transducers, data transmission circuits, and first-order filters. Corequisite: ECE 2112. FALL, SPRING. [1]

ECE2123 - Digital Systems
Course Description

(Also listed as CS 2123). Digital systems and hardware fundamentals of computer architectures, from logic gates and sequential logic to simple processor (e.g. von Neumann) architectures. Boolean algebra, information representation, state machines, digital system design, processors, instruction execution, I/O handling, and machine instruction set concepts. ECE 2123 is not open to students who have earned credit for ECE 2116. Serves as repeat credit for CS 2123. Corequisite: ECE 2123L. FALL, SPRING [3].

ECE2123L - Digital Systems Laboratory
Course Description

(Also listed as CS 2123L). Laboratory for ECE 2123. One three-hour laboratory per week. ECE 2123L is not open to students who have earned credit for ECE 2116L. Serves as repeat credit for CS 2123L. Corequisite: ECE 2123. FALL, SPRING [1].

ECE2213 - Circuits II
Course Description

Steady-state and transient analysis of electrical networks with emphasis on Laplace transform methods and pole-zero concepts. Prerequisite: ECE 2112, PHYS 1602. Corequisite: ECE 2213L, MATH 2400 or 2420. FALL, SPRING. [3]

ECE2213L - Circuits II Laboratory
Course Description

Laboratory for ECE 2213. One three-hour laboratory per week. Corequisite: ECE 2213. FALL, SPRING. [1]

ECE2214 - Analog Circuits and Systems
Course Description

Steady-state and transient analysis of electrical networks with emphasis on Laplace and Fourier transform methods and pole-zero concepts. No credit for students who have earned credit for ECE 2213 or 3214. Prerequisite: ECE 2112, PHYS 1602. Corequisite: MATH 2400 or 2420. FALL, SPRING. [3]

ECE2218 - Microcontrollers
Course Description

(Also listed as CS 2218). Microprocessor and microcontroller architecture with emphasis on control applications. Assembly language and interfacing with programs written in high-level languages. Interfacing and real-time I/O with microprocessors, control algorithms, and networking with microcontrollers. Serves as repeat credit for CS 2218. Prerequisite: ECE 2116 or 2123; one of CS 1101, 1103, or 1104. Corequisite: ECE 2218L. SPRING. [3].

ECE2218L - Microcontrollers Laboratory
Course Description

(Also listed as CS 2218L). Laboratory for ECE 2218. A small structured project is required. One three-hour laboratory per week. Serves as repeat credit for CS 2218L. Corequisite: ECE 2218. SPRING. [1]

ECE2281 - Computer Architecture
Course Description

(Also listed as CS 2281). Introduction to computer architecture from a programmer’s perspective. Fundamentals: Boolean logic, combinational and sequential logic circuits, information representation in binary form. The von Neumann instruction set architecture, programmer’s model of a processor. Low-level programming using the C language, and its mapping to machine instructions. Memory hierarchy and performance issues. Input/output methods and advanced processors: multi-core, GPUs. ECE 2281 is not open for students who have earned credit for CS 2281 without permission. Serves as repeat credit for CS 2281. Prerequisite: CS 2201. Corequisite: ECE 2281L. FALL, SPRING [3].

ECE2281L - Computer Architecture Laboratory
Course Description

(Also listed as CS 2281L). Laboratory for ECE 2281. One three-hour laboratory per week. ECE 2281L is not open for students who have earned credit for CS 2281L without permission. Serves as repeat credit for CS 2281L. Corequisite: ECE 2281. FALL, SPRING [1].

ECE2860 - Introduction to Undergraduate Research
Course Description

Introduction to undergraduate research under the direction of ECE faculty. Students in the School of Engineering may only receive open elective credit for ECE 2860. [1-3].

ECE3214 - Signals and Systems
Course Description

Fundamental signals, systems, and linear algebra concepts necessary for the study of communications and control systems. Includes continuous-time and discrete-time signal and system concepts, Fourier analysis in both continuous and discrete-time, Z-transform, and the FFT. Prerequisite: ECE 2112. FALL, SPRING. [3]

ECE3233 - Electromagnetics
Course Description

Electromagnetic field theory. Maxwell's equations from a historical approach. Electromagnetic waves with regard to various media and boundary conditions. Prerequisite: PHYS 1602. Corequisite: MATH 2400 or 2420. FALL. [3]

ECE3235 - Electronics I
Course Description

Semiconductor devices and electronic circuits. Diodes, BJT and MOS transistors. Device models, modes of operation, biasing. Small-signal models, low-frequency analysis of single- and multi-stage analog amplifiers, simple amplifier design. Large signal models, dc analysis of digital circuits. Prerequisite: ECE 2112. Corequisite: ECE 3235L. FALL. [3]

ECE3235L - Electronics I Laboratory
Course Description

Laboratory for ECE 3235. One three-hour laboratory per week. Corequisite: ECE 3235. FALL. [1]

ECE3860 - Undergraduate Research
Course Description

Supervised projects in electrical engineering, computer engineering, or related fields. Consent of instructor required. No more than 6 hours of ECE 3860 and 3861 may be applied toward graduation. [1-3]

ECE3861 - Undergraduate Research
Course Description

Supervised projects in electrical engineering, computer engineering, or related fields. Consent of instructor required. No more than 6 hours of ECE 3860 and 3861 may be applied toward graduation. [1-3]

ECE3891 - Special Topics
Course Description

[1-3 each semester]

ECE3892 - Special Topics
Course Description

[1-3 each semester]

ECE4239 - Cyber-Physical Systems: Foundations and Project
Course Description

(Also listed as CS 4239). Foundations of cyber-physical systems and the Internet-of-Things. Model-based engineering of cyber-physical systems, including modeling of physical and computational systems, design and implementation techniques, analysis and verification. Includes modeling and analysis assignments, and project using a simulator and a real-time computer system. Serves as repeat credit for CS 4239. Prerequisite: CS 3281 or ECE 4375 or CS 4375; MATH 2300 or 2500; MATH 2410 or 2501 or 2600. SPRING. [3]

ECE4252 - Signal Processing and Communications
Course Description

AM and FM modulation. Advanced topics in signal processing. Prerequisite: ECE 3214 or 4356. SPRING. [3]

ECE4257 - Control Systems I
Course Description

Theory and design of feedback control systems, steady-state and transient analysis, stability considerations. Model representation. State-variable models. Prerequisite: ECE 2213, 2214, or 3214. FALL. [3]

ECE4267 - Power System Analysis
Course Description

Analysis of large transmission and distribution networks. Analysis of power lines, load flow, short circuit studies, economic operation, and stability. Prerequisite: ECE 2213 or 2214. [3]

ECE4268 - Distributed Electrical Energy Systems
Course Description

Uses of photovoltaics and wind as well as micro-hydro, fuel cells, and geothermal for producing electricity. Comparison with traditional generating methods based on the prime movers (steam, gas, etc.) and types (primarily three-phase) of electrical generators used. The economics of stand-alone and grid connected systems are covered. Prerequisite: ECE 2112. [3]

ECE4275 - Microelectronic Systems
Course Description

Active devices in the context of digital systems, with an emphasis on embedded systems integration. Characteristics and utilization of different digital integrated circuit families, common bus structures and protocols and real-world interfaces (comparators, A/D/A conversion). Prerequisite: ECE 2112; ECE 2116 or ECE 2123. SPRING. [3]

ECE4283 - Principles and Models of Semiconductor Devices
Course Description

Physical principles of operation of the p-n junction, MOS field-effect transistor, and bipolar transistor. Fundamentals of charge transport, charge storage, and generation-recombination; application to the operation of MOSFET and BJT. Device modeling with emphasis on features and constraints of integrated circuit technologies. Prerequisite: ECE 3235. [3]

ECE4284 - Integrated Circuit Technology and Fabrication
Course Description

Monolithic integrated circuit technology. Basic semiconductor properties and processes that result in modern integrated circuit. Bipolar and MOSFET processes and structures. Fabrication, design, layout, and applications as regards semiconductor microelectronic technologies. Prerequisite: ECE 3235. SPRING. [3]

ECE4286 - Audio Engineering
Course Description

Engineering aspects of high fidelity sound reproduction, with emphasis on digital audio and loudspeakers. Analog-to-digital and digital-to-analog conversion, data storage, perceptual coding, loudspeaker design. Prerequisite: ECE 2213 or 2214; ECE 3235. [3]

ECE4287 - Engineering Reliability
Course Description

Topics in engineering reliability with emphasis on electrical devices and systems. Reliability concepts and models. Risk analysis. Lifetime evaluation. System examples. Prerequisite: ECE 3235 or ECE 4275. [3]

ECE4288 - Optoelectronics
Course Description

Fundamentals and applications of light generation, propagation, and modulation in passive and active optoelectronic components. Waveguides, lasers, electro-optic modulators, and emerging optoelectronic technology for optical communication, computing, and sensing applications. Prerequisite: ECE 3233 or equivalent. SPRING. [3]

ECE4289 - Spacecraft Systems
Course Description

Spacecraft electrical and electronic subsystems with emphasis on practical limitations and hazards in space. Analysis of environments, mechanisms of failure, and implications for design. Prerequisite: ECE 3235 or 4275. SPRING. [3]

ECE4334 - RF and Microwave Design
Course Description

Modeling of components and transmission structures at RF and microwave frequencies (30 MHz to 30 GHz), with emphasis on the effects of materials and geometry on passive structures for filtering and impedance matching. Modeling and design of active circuits and components such as RF amplifiers with input and output impedance matching structures. Prereq: ECE 3233. SPRING. [3]

ECE4335 - Fundamentals of Quantum Engineering
Course Description

Overview of quantum effects in microelectronics and introduction to quantum computing. The needs, opportunities, and challenges of extending current computing paradigms to quantum-enhanced microelectronics technologies are discussed. Students are introduced to basis states of quantum systems and principles of superposition and entanglement, qubits, and basic algorithms relevant to quantum computing. Practical implementations of quantum computing are illustrated. A student project on current developments in quantum computing is required. Prerequisites: One of PHYS 1602, 1912, or 2255. SPRING. [3]

ECE4353 - Image Processing
Course Description

Digital imaging and computational photography. Image formation. Point processing. Color perception and manipulation. Spatial filtering via convolution. 2D Fourier transforms. Frequency-domain filtering. Intensity quantization. High dynamic range imaging. Resampling for image resizing, rotation, and warping. Image compositing. Panorama generation. Noise reduction. Mathematical morphology. Image compression. Three lectures and one three-hour virtual laboratory. Prerequisite: CS 1101 or 1104; MATH 2400, 2410, 2501, or 2600. FALL. [4]

ECE4354 - Computer Vision
Course Description

Computational processes. Python and OpenCV for real-time processing. Feature detection: edges, corners, and oriented histogram methods. Feature matching. Scale space. Projective geometry. Camera models. Stereopsis. Image rectification. Multi-baseline stereo. Motion estimation. 3D reconstruction. Machine learning for computer vision including multilayer neural networks. Prerequisite: ECE 4353. SPRING. [3]

ECE4356 - Digital Signal Processing
Course Description

Discrete-time signals and systems. Applications of Digital Signal Processing (DSP) sampling, digital filtering, FFTs, etc. Three lectures and one laboratory period. Prerequisite: MATH 2300. SPRING. [4]

ECE4358 - Control Systems II
Course Description

Modern control design. Discrete-time analysis. Analysis and design of digital control systems. Nonlinear systems and optimum control systems. Fuzzy control systems. Two lectures and one laboratory. Prerequisite: ECE 4257. SPRING. [3]

ECE4363 - Applied Statistical Machine Learning
Course Description

Application of mathematical techniques that form the foundation of machine learning and artificial intelligence. Probability and statistics, applications of Bayes theorem, matrix analysis, LMS and maximum likelihood estimation. Classification techniques, linear and basis function regressions. Estimation and sampling of probability distributions. Data partitioning and n-fold cross-validation. Recursive Bayesian estimation. Methods of dimensionality reduction. The perceptron, kernel methods, support vector machines, and Gaussian processes. Prerequisite: One of MATH 2810, MATH 2820, or BME 2400. FALL. [3]

ECE4371 - Mobile and Wireless Networks
Course Description

Design, development, and applications of mobile applications and services. Topics include wireless technologies, smart phone programming, cloud computing services. Course not open to students who have earned credit for CS 4283 without permission. Serves as repeat credit for CS 4283. Prerequisite: CS 2201 or equivalent programming experience. [3]

ECE4375 - Embedded Systems
Course Description

(Also listed as CS 4375). Design and implementation of embedded computer-based systems. Programming for real-time systems and the Internet of Things. Embedded system modeling, design, analysis, and implementation using real-time and event-driven techniques. A structured project is required. Serves as repeat credit for CS 4375. Prerequisite: ECE 2218, CS 2201. Corequisite: ECE 4375L. FALL. [3]

ECE4375L - Embedded Systems Laboratory
Course Description

(Also listed as CS 4375L). Design and implementation of embedded computer-based systems. Programming for real-time systems and the Internet of Things. Embedded system modeling, design, analysis, and implementation using real-time and event-driven techniques. A structured project is required. Serves as repeat credit for CS 4375L. Prerequisite: ECE 2218, CS 2201. Corequisite: ECE 4375. FALL. [1]

ECE4377 - FPGA Design
Course Description

Design and applications of field-programmable gate arrays, Electronic Design Automation (EDA) tools for design, placement, and routing. Hardware description languages. Implementation of designs on prototype FPGA board. Prerequisite: ECE 2116 or 2123. [3]

ECE4380 - Electronics II
Course Description

Integrated circuit analysis and design. High frequency operation of semiconductor devices. Frequency-response and feedback analysis of BJT and MOS analog amplifier circuits, multi-stage frequency-compensated amplifier design. Transient analysis of BJT and MOS digital circuit families. Digital-to-analog and analog-to-digital conversion circuits. Prerequisite: ECE 2213 or 2214; ECE 3235. SPRING. [3]

ECE4383 - Computer Networks
Course Description

(Also listed as CS 4383). Computer communications. Network (Internet) architecture. Algorithms and protocol design at each layer of the network stack. Cross-layer interactions and performance analysis. Network simulation tools. Lab and programming assignments. Serves as repeat credit for CS 4383. Course not open to students who have earned credit for ECE 4371 without permission. Prerequisite: CS 3281 or ECE 4375. [3]

ECE4385 - VLSI Design
Course Description

Integrated circuit and fabrication techniques; CAD tools for design, layout, and verification; parasitic elements and their effects on circuit performance; system-level design experience is gained by completing design and layout phases of a project. Prerequisite: ECE 2116 or ECE 2123; ECE 3235. FALL. [3]

ECE4950 - Program and Project Management for ECE
Course Description

Methods for planning programs and projects. Organization structures and information management for project teams. Communications between project teams and clients, government agencies, and others. Motivational factors and conflict resolution. Budget/schedule control. Similar to ENGM 3700, but preparatory to the ECE senior design project course, ECE 4951. Credit given for only one of ENGM 3700, CE 4400 or ECE 4950. Prerequisite: senior standing. Corequisite: ECE 4959. FALL. [3]

ECE4951 - Electrical and Computer Engineering Design
Course Description

Based on product specifications typically supplied by industrial sponsors, teams of students responsible for the formulation, execution, qualification, and documentation of a culminating engineering design. The application of knowledge acquired from earlier coursework, both within and outside the major area, along with realistic technical, managerial, and budgetary constraints using standard systems engineering methodologies and practices. Prerequisite: ECE 4950, at least one DE course, senior standing. SPRING. [3]

ECE4959 - Senior Engineering Design Seminar
Course Description

Elements of professional engineering practice. Professionalism, licensing, ethics and ethical issues, intellectual property, contracts, liability, risk, reliability and safety, interdisciplinary teams and team tools, codes, standards, professional organizations, careers, entrepreneurship, human factors, and industrial design. Prerequisite: senior standing. Corequisite: ECE 4950. FALL. [1]

Engineering Management

ENGM2160 - Engineering Economy
Course Description

Economic evaluation and comparison of alternatives: interest, periodic payments, depreciation, criteria, and analytical procedures in investment decision-making, and cost-estimating. FALL, SPRING. [3]

ENGM2210 - Technology Strategy
Course Description

Critical issues faced by chief technology officers. Assessment of technological capabilities and opportunities, formulation of a technical plan for the product portfolio and commercialization, management of intellectual property, and economic analysis. Prerequisite: Sophomore standing. FALL, SPRING. [3]

ENGM2440 - Applied Behavioral Science
Course Description

Leadership styles, power team building, conflict resolution, management resolution, interviewing techniques. Prerequisite: sophomore standing. FALL, SPRING, SUMMER. [3]

ENGM3000 - Enterprise System Design
Course Description

Design of complex enterprise systems and processes including enterprise requirements analysis, process-mapping, modeling, performance measurement, benchmarking, solution development, and change management. Prerequisite: ENGM 2210 or BUS 2700, junior standing. FALL, SPRING. [3]

ENGM3010 - Systems Engineering
Course Description

Fundamental considerations associated with the engineering of large-scale systems. Models and methods for systems engineering and problem solving using a systems engineering approach. Prerequisite: ENGM 2210, junior standing. FALL, SPRING. [3]

ENGM3100 - Finance and Accounting for Engineers
Course Description

Time value of money, capital budgeting and formation, financial accounting and reporting, double entry bookkeeping, taxation, performance ratio measurements, and working capital management. Probabilistic models for expected net present value and rate of return, dividend pricing models for alternative growth scenarios, cost and market based models for average cost of capital, taxation algorithms, and regression analysis for individual firm betas. Prerequisite: Junior standing. FALL, SPRING, SUMMER. [3]

ENGM3200 - Technology Marketing
Course Description

Strategies for marketing technology-based products and services. Demand analysis, segmentation, distribution, and personal selling. Economic analysis from inception to end use. Prerequisite: ENGM 2210 or BUS 1600, junior standing. FALL. [3]

ENGM3300 - Technology Assessment and Forecasting
Course Description

Methods of forecasting technological advancements and assessing their potential intended and unintended consequences. Delphi method, trend exploration, environmental monitoring, and scenario development. Prerequisite: Junior standing. SPRING. [3]

ENGM3350 - Organizational Behavior
Course Description

Study of the factors that impact how individuals and groups interact and behave within organizations, and how organizations respond to their environment. Motivation theory, communication within organizations, group dynamics, conflict management, decision making, power, strategic planning, organizational culture, and change. Focus on utilizing analytical tools to understand organizations: symbolic, political, human resources, and structural. Prerequisite: ENGM 2440. [3]

ENGM3600 - Technology-Based Entrepreneurship
Course Description

Identification and evaluation of opportunities: risks faced by entrepreneurs, market assessment, capital requirements, venture capital acquisition, legal structures, tax implications for sharing technology-based businesses. Prerequisite: junior standing. FALL. [3]

ENGM3650 - Operations and Supply Chain Management
Course Description

Manufacturing strategy, process analysis, product and process design, total quality management, capacity planning, inventory control, supply chain design, and advanced operations topics. Modeling and analysis using cases and spreadsheets. Prerequisite: Junior standing. FALL. [3]

ENGM3700 - Program and Project Management
Course Description

Scheduling, cost estimation/predictions, network analysis, optimization, resource/load leveling, risk/mitigation, quality/testing, international projects. Term project required. Provides validated preparation for the Project Management Institute CAPM certification for undergraduates or the PMP for graduate students. Credit given for only one of ENGM 3700, CE 4400, or EECE 4950. Prerequisite: Junior standing. FALL, SPRING, SUMMER. [3]

ENGM3850 - Independent Study
Course Description

Readings or projects on topics in engineering management under the supervision of the ENGM faculty. Consent of instructor required. [1-3 each semester, not to exceed a total of 3].

ENGM3851 - Independent Study
Course Description

Readings or projects on topics in engineering management under the supervision of the ENGM faculty. Consent of instructor required. [1-3 each semester, not to exceed a total of 3]

ENGM3890 - Special Topics
Course Description

Variable credit, 1-3 each semester. [1-3]

ENGM3891 - Special Topics
Course Description

[Variable credit: 1-3 each semester]

ENGM4500 - Product Development
Course Description

Project-based course focused on the methods for managing the design, development, and commercialization of new products. Generating product concepts, developing a prototype strategy, modeling financial returns, securing intellectual property, designing retail packaging, and performing market testing to establish an optimal price. Teams include Engineering and MBA students. Prerequisite: ENGM 2210; ENGM 3700 or CE 4400 or EECE 4950; junior standing. SPRING. [4]

ENGM4800 - Wealth Management for Engineers
Course Description

Foundations of financial planning; managing basic assets, credit, and insurance needs; employee incentive plans such as stock options, deferred compensation and severance; managing investments in stocks, bonds, mutual funds, and real estate; retirement and estate planning such as 401k, 403b, IRA, Roth, estate preservation. Students in the School of Engineering may only receive open elective credit for ENGM 4800. SPRING [1]

ENGM4951 - Engineering Management Capstone Project
Course Description

Application of engineering management concepts through team projects sponsored by faculty or seed-stage technology companies. Thinking, analysis, and planning processes needed to commercialize a concept and develop a business plan for presentation to investors. Prerequisite: ENGM 2210; ENGM 3000 or 3010. Corequisite: ENGM 3700. SPRING. [3]

Engineering Science

ES1001 - Engineering Commons iSeminar
Course Description

Topics vary. Open elective credit only. [1]

ES1115 - First-year Engineering Seminar
Course Description

First-year Engineering Seminar. [1]

ES1401 - Introduction to Engineering, Module1
Course Description

First of three required discipline-specific modules for Introduction to Engineering credit providing an introduction to engineering analysis and design. Discipline-specific modules selected based on individual choice. Students choose three different disciplines for the three modules and all three must be completed in one semester for full course credit. Emphasis is on contemporary engineering problem solving in a discipline-specific context. FALL. [1]

ES1402 - Introduction to Engineering, Module 2
Course Description

Continuation of ES 1401. ES 1401-1403 must be completed in one semester for full course credit. FALL. [1]

ES1403 - Introduction to Engineering, Module 3
Course Description

Continuation of ES 1402. ES 1401-1403 must be completed in one semester for full course credit. FALL. [1]

ES2100W - Technical Communications
Course Description

Instruction and practice in written and oral communication. Emphasis is on organization and presentation of information to a specific audience for a specific purpose. Course includes writing and editing reports of various lengths, preparing and using visual aids, and presenting oral reports. Prerequisite: Sophomore standing. FALL, SPRING. [3]

ES2700 - Engineering Career Development
Course Description

A practical course designed to help students succeed in the job/internship search and career development. Interviewing, networking, online tools, elevator pitch, career fair strategies, career center resources, company research techniques, resumes, cover letters, negotiating, follow-up messages. FALL [1]

ES2900 - Engineering and Public Policy
Course Description

Role of federal policy in supporting and promoting engineering and science for the benefit of the U.S. Ways engineering, science and public policy impact each other. Federal government involvement, policy making, federal budget, role of universities and national labs, national defense, homeland security, biomedical enterprise. SPRING [3]

ES3230 - Ships Engineering Systems
Course Description

Ship characteristics and types, including design and control, propulsion, hydrodynamic forces, stability, compartmentation, and electrical and auxiliary systems. Theory and design of steam, gas turbine, and nuclear propulsion. FALL. [3]

ES3231 - Navigation
Course Description

Naval piloting procedures. Charts, visual and electronic aids, and theory and operation of magnetic and gyro compasses; inland and international rules of the nautical road. The celestial coordinate system, including spherical trigonometry and application for navigation at sea. Environmental influences on naval operations. SPRING. [3]

ES3232 - Ships Weapons Systems
Course Description

Theory and employment of weapons systems, including the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. Fire control systems and major weapons types, including capabilities and limitations. Physical aspects of radar and underwater sound. Command, control, and communications and means of weapons system integration. SPRING. [3]

ES3233 - Naval Operations
Course Description

Methods of tracking and intercepting at sea. Maritime maneuvering problems, formation tactics, and shipboard operations. Naval communications, ship behavior and maneuvering, and applied aspects of ship handling. Prerequisite: ES 3231. FALL. [3]

ES3300 - Energy and Sustainability - An Engineering Approach
Course Description

Uses basic understanding of mechanics, thermodynamics, and electrodynamics to describe primary and secondary energy generation and use. Emphasis on current applications, energy efficiency at both the source and demand sides, and future (near and long-term) energy scenarios. Various economic models are explored. Prerequisite: junior or senior standing. [3]

ES3860 - Undergraduate Research
Course Description

Independent study under the direction of a faculty member with expertise in the area of study. [1-3 each semester]

ES3884 - Internship
Course Description

Internship credit for work approved by the Associate Dean of the School of Engineering. A written scholarly project must be produced in the internship. Course must be taken P/F. May be repeated for credit; maximum of total 4 hours. No more than 2 hours may count toward degree requirements. FALL, SPRING, SUMMER. [1]

ES3890 - Special Topics
Course Description

Technical elective courses of special current interest. No more than six semester hours of these courses may be credited to the student's record. Prerequisite: consent of instructor. FALL, SPRING. [1-3]

ES4951 - Senior Capstone Experience
Course Description

Based on project specifications typically supplied by industrial sponsors or part of a student's immersive experience. Students are responsible for the formulation, execution, qualification, and documentation of a culminating capstone experience. Application of knowledge acquired from earlier coursework, both within and outside the engineering core area, along with realistic technical, managerial, and budgetary constraints using standard systems engineering methodologies and practices. Prerequisite: Senior standing. Corequisite: ENGM 3700. SPRING. [3]

ES4959 - Senior Engineering Design Seminar
Course Description

Elements of professional engineering practice. Professionalism, licensing, ethics and ethical issues, intellectual property, contracts, liability, risk, reliability and safety, interdisciplinary teams and team tools, codes, standards, professional organizations, careers, entrepreneurship, human factors, and industrial design. Prerequisite: Senior standing. FALL. [1]

English

ENGL1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

ENGL1100 - Composition
Course Description

For students who need to improve their writing. Emphasis on writing skills, with some analysis of modern nonfiction writing. [3] (No AXLE credit)

ENGL1101 - Creative Writing Tutorial: Fiction
Course Description

Individual instruction in writing fiction. Offered on a pass/fail basis only. Not open to students who have earned credit for ENGL 3851 section 07 without permission. Total credit hours for this course and ENGL 3851 section 7 will not exceed 1 credit hour. Credit hours reduced from most recent course taken (or from test or transfer credit) as appropriate. [1] (No AXLE credit)

ENGL1102 - Creative Writing Tutorial: Poetry
Course Description

Individual instruction in writing poetry. Offered on a pass/fail basis only. Not open to students who have earned credit for ENGL 3851 section 07 without permission. Total credit hours for this course and ENGL 3851 section 7 will not exceed 1 credit hour. Credit hours reduced from most recent course taken (or from test or transfer credit) as appropriate. [1] (No AXLE credit)

ENGL1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

ENGL1210W - Prose Fiction: Forms and Techniques
Course Description

Close study of short stories and novels and written explication of these forms. [3] (HCA)

ENGL1220W - Drama: Forms and Techniques
Course Description

Close study of representative plays of the major periods and of the main formal categories (tragedy, comedy) and written explication of these forms. [3] (HCA)

ENGL1230W - Literature and Analytical Thinking
Course Description

Close reading and writing in a variety of genres drawn from several periods. Productive dialogue, persuasive argument, and effective prose style. Offered on a graded basis only. [3] (HCA)

ENGL1240 - Beginning Nonfiction Workshop
Course Description

Writing various forms of prose nonfiction. [3] (HCA)

ENGL1250W - Introduction to Poetry
Course Description

Close study and criticism of poems. The nature of poetry, and the process of literary explication. [3] (HCA)

ENGL1260W - Introduction to Literary and Cultural Analysis
Course Description

Analysis of a range of texts in social, political, and aesthetic contexts. Interdisciplinary study of cultural forms as diverse as poetry, advertisement, and film. [3] (HCA)

ENGL1270W - Introduction to Literary Criticism
Course Description

Selected critical approaches to literature. [3] (HCA)

ENGL1280 - Beginning Fiction Workshop
Course Description

Introduction to the art of writing prose fiction. [3] (HCA)

ENGL1290 - Beginning Poetry Workshop
Course Description

Introduction to the art of writing poetry. [3] (HCA)

ENGL1300W - Intermediate Composition
Course Description

A writing course including the analysis of essays from a variety of disciplines. [3] (HCA)

ENGL2200 - Foundations of Literary Study
Course Description

Fundamentals of literary study: close reading; analytic writing; historical context; abstract reasoning in theory; creative expression. [3] (HCA)

ENGL2310 - Representative British Writers
Course Description

Selections from British literature with attention to contexts and literary periods. From the beginnings to 1660. Provides a broad background for more specialized courses and is especially useful for students considering advanced studies in literature. [3] (HCA)

ENGL2311 - Representative British Writers
Course Description

Selections from British literature with attention to contexts and literary periods. From 1660 to the present. Provides a broad background for more specialized courses and is especially useful for students considering advanced studies in literature. [3] (HCA)

ENGL2316 - Representative American Writers
Course Description

Selections from the entire body of American literature with attention to contexts and literary periods. Provides a broad background for more specialized courses and is especially useful for students considering advanced studies in literature. Repeat credit for students who have completed 2316W. [3] (US)

ENGL2316W - Representative American Writers
Course Description

Selections from the entire body of American literature with attention to contexts and literary periods. Provides a broad background for more specialized courses and is especially useful for students considering advanced studies in literature. Repeat credit for students who have completed 2316. [3] (US)

ENGL2318 - World Literature, Classical
Course Description

Great Books from the points of view of literary expression and changing ideologies: Classical Greece through the Renaissance. Repeat credit for students who have completed 2318W. [3] (HCA)

ENGL2318W - World Literature, Classical
Course Description

Great Books from the points of view of literary expression and changing ideologies: Classical Greece through the Renaissance. Repeat credit for students who have completed 2318. [3] (HCA)

ENGL2319 - World Literature, Modern
Course Description

Great Books from the points of view of literary expression and changing ideologies: The 17th century to the contemporary period. Repeat credit for students who have completed 2319W. [3] (HCA)

ENGL2319W - World Literature, Modern
Course Description

Great Books from the points of view of literary expression and changing ideologies: The 17th century to the contemporary period. Repeat credit for students who have completed 2319. [3] (HCA)

ENGL2320 - Southern Literature
Course Description

The works of Southern writers from Captain Smith to the present. Topics such as the Plantation Myth, slavery and civil war, Agrarianism, and "post-southernism." Authors may include Poe, Twain, Cable, Faulkner, Welty, Percy, Wright. [3] (HCA)

ENGL2330 - Introduction to Environmental Humanities
Course Description

Interdisciplinary study of human beings' relationship to the environment. Literary, artistic, historical, and philosophical perspectives. Cultural understandings of the environment. [3] (HCA)

ENGL2330W - Introduction to Environmental Humanities
Course Description

Interdisciplinary study of human beings' relationship to the environment. Literary, artistic, historical, and philosophical perspectives. Cultural understandings of the environment. [3] (HCA)

ENGL2740 - Topics in Literature and Philosophy
Course Description

Literary, philosophical, and cultural texts on varied philosophical topics. May be repeated for credit if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3] (HCA)

ENGL2740W - Topics in Literature and Philosophy
Course Description

Literary, philosophical, and cultural texts on varied philosophical topics. May be repeated for credit if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3] (HCA)

ENGL3210 - Intermediate Nonfiction Writing
Course Description

Instruction in the forms and techniques of nonfiction writing. Admission by consent of instructor. May be repeated once for credit. [3] (HCA)

ENGL3215 - The Art of Blogging
Course Description

Conventions of the rapidly evolving literary form of blogging. Creation and maintenance of a personal blog. Critique of online journalism across many genres, including activism, politics, science, and arts and culture. Interaction with professional bloggers. [3] (HCA)

ENGL3215W - The Art of Blogging
Course Description

Conventions of the rapidly evolving literary form of blogging. Creation and maintenance of a personal blog. Critique of online journalism across many genres, including activism, politics, science, and arts and culture. Interaction with professional bloggers. Serves as repeat credit for students who have completed 3215. [3] (HCA)

ENGL3220 - Advanced Nonfiction Writing
Course Description

Further instruction in the form and techniques of nonfiction writing. Admission by consent of instructor. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 6 credits total for all semesters of ENGL 3220] (HCA)

ENGL3230 - Intermediate Fiction Workshop
Course Description

Instruction in fiction writing. Supplementary readings that illustrate traditional aspects of prose fiction. Admission by consent of instructor. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 6 credits total for all semesters of ENGL 3230] (HCA)

ENGL3240 - Advanced Fiction Workshop
Course Description

Continuing instruction in fiction writing. Admission by consent of instructor. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 6 credits total for all semesters of ENGL 3240] (HCA)

ENGL3250 - Intermediate Poetry Workshop
Course Description

Instruction in poetry writing. Supplementary readings illustrating traditional aspects of poetry. Admission by consent of instructor. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 6 credits total for all semesters of ENGL 3250] (HCA)

ENGL3260 - Advanced Poetry Workshop
Course Description

Continuing instruction in poetry writing. Admission by consent of instructor. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 6 credits total for all semesters of ENGL 3260] (HCA)

ENGL3280 - Literature and the Craft of Writing
Course Description

The forms and techniques of creative writing. Contemporary practices in fiction and poetry in historical context. [3] (HCA)

ENGL3310 - Anglo-Saxon Language and Literature
Course Description

The study of the Old English language. Selected historical and literary prose. Short heroic poems. [3] (HCA)

ENGL3312 - The Medieval World
Course Description

English literature and culture in relation to Europe, the Middle East, and Asia. Cross-cultural exchange, national and religious identity, and race. Not open to students who have completed ENGL 3316. Serves as repeat credit for ENGL 3312W. [3] (P)

ENGL3312W - The Medieval World
Course Description

English literature and culture in relation to Europe, the Middle East, and Asia. Cross-cultural exchange, national and religious identity, and race. Not open to students who have completed ENGL 3316. Serves as repeat credit for ENGL 3312. [3] (P)

ENGL3314 - Chaucer
Course Description

Study of The Canterbury Tales and Chaucer's world. [3] (HCA)

ENGL3316 - Medieval Literature
Course Description

The drama, lyrics, romance, allegory, and satire of the fourteenth and fifteenth centuries, studied in the context of the period's intellectual climate and social change. [3] (HCA)

ENGL3318 - The History of the English Language
Course Description

The development of English syntax. History of the English vocabulary: word formation, borrowing, semantic change, and meter. [3] (HCA)

ENGL3330 - Sixteenth Century
Course Description

Prose and poetry of the sixteenth century. Emphasis on Spenser and his contemporaries. [3] (HCA)

ENGL3332 - English Renaissance: The Drama
Course Description

English drama, exclusive of Shakespeare, from 1550-1642: Marlowe, Jonson, Webster, and others. Serves as repeat credit for ENGL 3332W. [3] (HCA)

ENGL3332W - English Renaissance: The Drama
Course Description

English drama, exclusive of Shakespeare, from 1550-1642: Marlowe, Jonson, Webster, and others. Serves as repeat credit for 3332. [3] (HCA)

ENGL3333 - Special Offerings Online
Course Description

Topics vary by section and instructor. May be repeated for credit; students may register for more than one section of this course in the same semester. [3]

ENGL3335 - English Renaissance Poetry
Course Description

Development of the English poetic tradition from 1500-1700. Repeat credit for students who have earned credit for 3335W. [3] (HCA)

ENGL3335W - English Renaissance Poetry
Course Description

Development of the English poetic tradition from 1500-1700. Repeat credit for students who have earned credit for 3335. [3] (HCA)

ENGL3336 - Shakespeare: Comedies and Histories
Course Description

About twenty of the major plays considered in chronological order over two terms, with emphasis on Shakespeare's development as a dramatic artist. Primarily comedies and histories. Serves as repeat credit for ENGL 3336W. [3] (HCA)

ENGL3336W - Shakespeare: Comedies and Histories
Course Description

About twenty of the major plays considered in chronological order over two terms, with emphasis on Shakespeare's development as a dramatic artist. Primarily comedies and histories. Serves as repeat credit for ENGL 3336. [3] (HCA)

ENGL3337 - Shakespeare: Tragedies and Romances
Course Description

About twenty of the major plays considered in chronological order over two terms, with emphasis on Shakespeare's development as a dramatic artist. Primarily tragedies and romances. [3] (HCA)

ENGL3337W - Shakespeare: Tragedies and Romances
Course Description

About twenty of the major plays considered in chronological order over two terms, with emphasis on Shakespeare's development as a dramatic artist. Primarily tragedies and romances. Serves as repeat credit for ENGL 3337. [3] (HCA)

ENGL3340 - Shakespeare: Representative Selections
Course Description

A representative selection of plays, including histories, tragedies, comedies, and romances, designed to give the student a sense of the full range of Shakespeare's work in one semester. Repeat credit for students who have completed 3340W. [3] (HCA)

ENGL3340W - Shakespeare: Representative Selections
Course Description

A representative selection of plays, including histories, tragedies, comedies, and romances, designed to give the student a sense of the full range of Shakespeare's work in one semester. Repeat credit for students who have completed 3340. [3] (HCA)

ENGL3343 - Race and Early Modernity
Course Description

Drama, poetry, and prose from the 16th-17th centuries. Questions of race in conjunction with modern literary and theoretical works. [3] (HCA)

ENGL3346 - Seventeenth-Century Literature
Course Description

Poetry and prose from 1600 to the English Civil War, such as Metaphysical and Cavalier poetry, essays, romances, and satires. Authors may include Bacon, Cavendish, Donne, Herbert, Jonson, Lanier, Marvell, and Wroth. [3] (HCA)

ENGL3346W - Seventeenth-Century Literature
Course Description

Poetry and prose from 1600 to the English Civil War, such as Metaphysical and Cavalier poetry, essays, romances, and satires. Authors may include Bacon, Cavendish, Donne, Herbert, Jonson, Lanier, Marvell, and Wroth. Serves as repeat credit for 3346. [3] (HCA)

ENGL3348 - Milton
Course Description

The early English poems; Paradise Lost, Paradise Regained, and Samson Agonistes; the major prose. Serves as repeat credit for ENGL 3348W. [3] (HCA)

ENGL3348W - Milton
Course Description

The early English poems; Paradise Lost, Paradise Regained, and Samson Agonistes; the major prose. Serves as repeat credit for ENGL 3348. [3] (HCA)

ENGL3360 - Restoration and the Eighteenth Century
Course Description

Explorations of the aesthetic and social world of letters from the English Civil War to the French Revolution. Drama, poetry, and prose, including Restoration plays, political poetry, satire, travel narratives, and tales. Authors may include Behn, Dryden, Congreve, Addison, Swift, Finch, Pope, Fielding, Burney, Johnson, and Inchbald. Earlier writers. [3] (HCA)

ENGL3360W - Restoration and the Eighteenth Century
Course Description

Explorations of the aesthetic and social world of letters from the English Civil War to the French Revolution. Drama, poetry, and prose, including Restoration plays, political poetry, satire, travel narratives, and tales. Authors may include Behn, Dryden, Congreve, Addison, Swift, Finch, Pope, Fielding, Burney, Johnson, and Inchbald. Earlier writers. Serves as repeat credit for 3360. [3] (HCA)

ENGL3361 - Restoration and the Eighteenth Century
Course Description

Explorations of the aesthetic and social world of letters from the English Civil War to the French Revolution. Drama, poetry, and prose, including Restoration plays, political poetry, satire, travel narratives, and tales. Authors may include Behn, Dryden, Congreve, Addison, Swift, Finch, Pope, Fielding, Burney, Johnson, and Inchbald. Later writers. [3] (HCA)

ENGL3361W - Restoration and the Eighteenth Century
Course Description

Explorations of the aesthetic and social world of letters from the English Civil War to the French Revolution. Drama, poetry, and prose, including Restoration plays, political poetry, satire, travel narratives, and tales. Authors may include Behn, Dryden, Congreve, Addison, Swift, Finch, Pope, Fielding, Burney, Johnson, and Inchbald. Later writers. Serves as repeat credit for 3361. [3] (HCA)

ENGL3364 - The Eighteenth-Century English Novel
Course Description

The English novel from its beginning through Jane Austen. Development of the novel as a literary form, and study of selected works of Defoe, Richardson, Fielding, Sterne, and other novelists of the period. [3] (HCA)

ENGL3364W - The Eighteenth-Century English Novel
Course Description

The English novel from its beginning through Jane Austen. Development of the novel as a literary form, and study of selected works of Defoe, Richardson, Fielding, Sterne, and other novelists of the period. Serves as repeat credit for 3364.[3] (HCA)

ENGL3370 - The Bible in Literature
Course Description

An examination of ways in which the Bible and biblical imagery have functioned in literature and fine arts, in both "high culture" and popular culture, from Old English poems to modern poetry, drama, fiction, cartoons, and political rhetoric. Readings include influential biblical texts and a broad selection of literary texts drawn from all genres and periods of English literature. [3] (HCA)

ENGL3370W - The Bible in Literature
Course Description

An examination of ways in which the Bible and biblical imagery have functioned in literature and fine arts, in both "high culture" and popular culture, from Old English poems to modern poetry, drama, fiction, cartoons, and political rhetoric. Readings include influential biblical texts and a broad selection of literary texts drawn from all genres and periods of English literature. Serves as repeat credit for 3370. [3] (HCA)

ENGL3440W - Pop Science: The Art and Impact of Popular Science Writing
Course Description

(Previously ENGL 3240W) Mechanics and influence of popular science writing in the 21st century. Students will critique bestselling books and award-winning journalism; develop and publish their own blogs with a focus on science, technology, and the environment; and interact with top science writers, editors, and podcasters. Repeat credit for ENGL3240W or CSET 3240W. Not open to students who have earned credit for CSET 3890 section 01 offered fall 2019. Total credit hours for this course and CSET 3890 section 01, Fall 2019 will not exceed 3 credit hours. Credit hours reduced from most recent course taken (or from test or transfer credit) as appropriate. [3] (SBS)

ENGL3610 - The Romantic Period
Course Description

Prose and poetry of the Wordsworths, the Shelleys, Byron, Keats, and others. Serves as repeat credit for ENGL 3610. [3] (HCA)

ENGL3610W - The Romantic Period
Course Description

Prose and poetry of the Wordsworths, the Shelleys, Byron, Keats, and others. Serves as repeat credit for ENGL 3610W. [3] (HCA)

ENGL3611 - The Romantic Period II
Course Description

Continuation of 3610. Prose and poetry of the Wordsworths, the Shelleys, Byron, Keats, and others. [3] (HCA)

ENGL3611W - The Romantic Period II
Course Description

Continuation of 3610. Prose and poetry of the Wordsworths, the Shelleys, Byron, Keats, and others. Serves as repeat of 3611. [3] (HCA)

ENGL3614 - The Victorian Period
Course Description

Works of Tennyson, Browning, Arnold, Hardy, and others. Serves as repeat credit for ENGL 3614W. [3] (HCA)

ENGL3614W - The Victorian Period
Course Description

Works of Tennyson, Browning, Arnold, Hardy, and others. Serves as repeat credit for ENGL 3614. [3] (HCA)

ENGL3618 - The Nineteenth-Century English Novel
Course Description

The study of selected novels of Dickens, Thackeray, Emily Bront√´, George Eliot, George Meredith, Thomas Hardy, and other major novelists of the period. [3] (HCA)

ENGL3618W - The Nineteenth-Century English Novel
Course Description

The study of selected novels of Dickens, Thackeray, Emily Bront√´, George Eliot, George Meredith, Thomas Hardy, and other major novelists of the period. Serves as repeat credit for 3618. [3] (HCA)

ENGL3620 - Nineteenth-Century American Literature
Course Description

Explorations of themes, forms, and social and cultural issues shaping the works of American writers. Authors may include Cooper, Poe, Hawthorne, Douglass, Jacobs, Stowe, Melville, Dickinson, Alcott, Whitman, and Twain. [3] (HCA)

ENGL3620W - Nineteenth-Century American Literature
Course Description

Explorations of themes, forms, and social and cultural issues shaping the works of American writers. Authors may include Cooper, Poe, Hawthorne, Douglass, Jacobs, Stowe, Melville, Dickinson, Alcott, Whitman, and Twain. Serves as repeat credit for 3620. [3] (HCA)

ENGL3622 - Nineteenth-Century American Women Writers
Course Description

Themes and forms of American women's prose and poetry, with the emphasis on alternative visions of the frontier, progress, class, race, and self-definition. Authors include Child, Kirkland, Fern, Jacobs, Harper, Dickinson, and Chopin. [3] (HCA)

ENGL3622W - Nineteenth-Century American Women Writers
Course Description

Themes and forms of American women's prose and poetry, with the emphasis on alternative visions of the frontier, progress, class, race, and self-definition. Authors include Child, Kirkland, Fern, Jacobs, Harper, Dickinson, and Chopin. Serves as repeat credit for 3622. [3] (HCA)

ENGL3624W - Literature of the American Civil War
Course Description

Origins and impact of the war as depicted in short stories, novels, poems, and films. Harriet Beecher Stowe, Stephen Crane, Margaret Mitchell, William Faulkner, and Margaret Walker. [3] (US)

ENGL3630 - The Modern British Novel
Course Description

The British novel from the beginning of the twentieth century to the present. Conrad, Joyce, Lawrence, Virginia Woolf, Forster, and other novelists varying at the discretion of instructor. [3] (HCA)

ENGL3630W - The Modern British Novel
Course Description

The British novel from the beginning of the twentieth century to the present. Conrad, Joyce, Lawrence, Virginia Woolf, Forster, and other novelists varying at the discretion of instructor. Serves as repeat credit for 3630. [3] (HCA)

ENGL3634 - Modern Irish Literature
Course Description

Major works from the Irish literary revival to the present, with special attention to the works of Yeats, Synge, Joyce, O'Casey, and Beckett. [3] (HCA)

ENGL3634W - Modern Irish Literature
Course Description

Major works from the Irish literary revival to the present, with special attention to the works of Yeats, Synge, Joyce, O'Casey, and Beckett. Serves as repeat credit for 3634. [3] (HCA)

ENGL3640 - Modern British and American Poetry: Yeats to Auden
Course Description

A course in the interpretation and criticism of selected modern masters of poetry, British and American, with the emphasis on poetry as an art. Poets selected may vary at discretion of instructor. [3] (HCA)

ENGL3640W - Modern British and American Poetry: Yeats to Auden
Course Description

A course in the interpretation and criticism of selected modern masters of poetry, British and American, with the emphasis on poetry as an art. Poets selected may vary at discretion of instructor. Serves as repeat credit for 3640. [3] (HCA)

ENGL3642 - Film and Modernism
Course Description

Film in the context of the major themes of literary modernism: the divided self, language and realism, nihilism and belief, and spatialization of time. [3] (HCA)

ENGL3642W - Film and Modernism
Course Description

Film in the context of the major themes of literary modernism: the divided self, language and realism, nihilism and belief, and spatialization of time. Serves as repeat credit for 3642. [3] (HCA)

ENGL3644 - Twentieth-Century American Novel
Course Description

Explorations of themes, forms, and social cultural issues shaping the works of American novelists. Authors may include Fitzgerald, Faulkner, Hemingway, Hurston, Ellison, McCarthy, Bellow, Kingston, Morrison, Pynchon. Emphasizes writers before 1945. [3] (HCA)

ENGL3644W - Twentieth-Century American Novel
Course Description

Explorations of themes, forms, and social cultural issues shaping the works of American novelists. Authors may include Fitzgerald, Faulkner, Hemingway, Hurston, Ellison, McCarthy, Bellow, Kingston, Morrison, Pynchon. Emphasizes writers before 1945. Serves as repeat credit for 3644. [3] (HCA)

ENGL3645 - Twentieth-Century American Novel
Course Description

Explorations of themes, forms, and social cultural issues shaping the works of American novelists. Authors may include Fitzgerald, Faulkner, Hemingway, Hurston, Ellison, McCarthy, Bellow, Kingston, Morrison, Pynchon. Emphasizes writers after 1945. [3] (HCA)

ENGL3645W - Twentieth-Century American Novel
Course Description

Explorations of themes, forms, and social cultural issues shaping the works of American novelists. Authors may include Fitzgerald, Faulkner, Hemingway, Hurston, Ellison, McCarthy, Bellow, Kingston, Morrison, Pynchon. Emphasizes writers after 1945. Serves as repeat credit for 3645. [3] (HCA)

ENGL3646 - Poetry Since World War II
Course Description

Poets studied vary at discretion of instructor. Offered on a graded basis only. [3] (HCA)

ENGL3646W - Poetry Since World War II
Course Description

Poets studied vary at discretion of instructor. Offered on a graded basis only. Serves as repeat credit for 3646. [3] (HCA)

ENGL3650 - Ethnic American Literature
Course Description

Texts and theory relevant to understanding race, culture, and ethnicity in the formation of American culture. Literature from at least three of the following groups: African Americans, Native Americans, Asian Americans, Chicano/Latino Americans, Caribbean Americans, and European Americans. [3] (P)

ENGL3650W - Ethnic American Literature
Course Description

Texts and theory relevant to understanding race, culture, and ethnicity in the formation of American culture. Literature from at least three of the following groups: African Americans, Native Americans, Asian Americans, Chicano/Latino Americans, Caribbean Americans, and European Americans. [3] (P)

ENGL3654 - African American Literature
Course Description

Examination of the literature produced by African Americans. May include literary movements, vernacular traditions, social discourses, material culture, and critical theories. Repeat credit for students who have completed 3654W. [3] (US)

ENGL3654W - African American Literature
Course Description

Examination of the literature produced by African Americans. May include literary movements, vernacular traditions, social discourses, material culture, and critical theories. Repeat credit for students who have completed 3654. [3] (US)

ENGL3656 - Existential Literature
Course Description

Existential concepts, their relevance to literature, culture, and living. Exploring novels of Jean-Paul Sartre, Simone de Beauvoir, and Albert Camus, and the spread of existential ideas into various medias including film, television, poetry, and internet forms. Not open to students who have completed ENGL 1111-31 or HONS 1810W-56. [3] (HCA)

ENGL3656W - Existential Literature
Course Description

Existential concepts, their relevance to literature, culture, and living. Exploring novels of Jean-Paul Sartre, Simone de Beauvoir, and Albert Camus, and the spread of existential ideas into various medias including film, television, poetry, and internet forms. Not open to students who have completed ENGL 1111-31 or HONS 1810W-56. [3] (HCA)

ENGL3658 - Latino-American Literature
Course Description

Texts and theory relevant to understanding constructs of Latino identity, including race, class, gender, and basis for immigration, in the context of American culture. The course focuses on the examination of literature by Chicano, Puerto Rican, Cuban, Dominican, and Latin American writers in the United States. Serves as repeat credit for ENGL 3658W. [3] (P)

ENGL3658W - Latino-American Literature
Course Description

Texts and theory relevant to understanding constructs of Latino identity, including race, class, gender, and basis for immigration, in the context of American culture. The course focuses on the examination of literature by Chicano, Puerto Rican, Cuban, Dominican, and Latin American writers in the United States. Serves as repeat credit for ENGL 3658. [3] (P)

ENGL3659W - Cultures of the U.S.-Mexico Borderlands
Course Description

Literary and ethnic studies. Territories since the U.S.-Mexico War (1846-48). Representations of borders and nations. Serves as repeat credit for ENGL 3890W section 01 offered fall 2021. [3] (HCA)

ENGL3662 - Asian American Literature
Course Description

Diversity of Asian American literary production with specific attention to works after 1965. Topics such as gender and sexuality, memory and desire, and diaspora and panethnicity in the context of aesthetics and politics of Asian American experience. [3] (P)

ENGL3662W - Asian American Literature
Course Description

Diversity of Asian American literary production with specific attention to works after 1965. Topics such as gender and sexuality, memory and desire, and diaspora and panethnicity in the context of aesthetics and politics of Asian American experience. [3] (P)

ENGL3664 - Jewish American Literature
Course Description

Nineteenth century to the present. Issues of race, gender, ethnicity, immigration, and diaspora. Offered on a graded basis only. [3] (HCA)

ENGL3664W - Jewish American Literature
Course Description

Nineteenth century to the present. Issues of race, gender, ethnicity, immigration, and diaspora. Offered on a graded basis only. Serves as repeat credit for 3664. [3] (HCA)

ENGL3670 - Colonial and Post-Colonial Literature
Course Description

Literature exploring European colonialism and its aftermath from the eighteenth century to the present: language, gender, and agency in the colonial encounter; anti-colonial resistance movements; and postcolonial cultures. Topics may vary; course may be taken more than once with permission of the Director of Undergraduate Studies. [3] (HCA)

ENGL3670W - Colonial and Post-Colonial Literature
Course Description

Literature exploring European colonialism and its aftermath from the eighteenth century to the present: language, gender, and agency in the colonial encounter; anti-colonial resistance movements; and postcolonial cultures. Topics may vary; course may be taken more than once with permission of the Director of Undergraduate Studies. [3] (HCA)

ENGL3674 - Caribbean Literature
Course Description

Caribbean literature from 1902 to the present. Emphasis on writing since 1952, which marks the beginning of West Indian nationalism and the rise of the West Indian novel. [3] (INT)

ENGL3674W - Caribbean Literature
Course Description

Caribbean literature from 1902 to the present. Emphasis on writing since 1952, which marks the beginning of West Indian nationalism and the rise of the West Indian novel. Serves as repeat credit for 3674. [3] (INT)

ENGL3678 - Anglophone African Literature
Course Description

From the Sundiata Epic to the present with emphasis on the novel. Attention to issues of identity, post coloniality, nationalism, race, and ethnicity in both SubSaharan and Mahgrib literatures. Such authors as Achebe, Ngugi, Gordimer, Awoonor, and El Saadaw. Serves as repeat credit for ENGL 3678W. [3] (INT)

ENGL3678W - Anglophone African Literature
Course Description

From the Sundiata Epic to the present with emphasis on the novel. Attention to issues of identity, post coloniality, nationalism, race, and ethnicity in both SubSaharan and Mahgrib literatures. Such authors as Achebe, Ngugi, Gordimer, Awoonor, and El Saadaw. Serves as repeat credit for ENGL 3678. [3] (INT)

ENGL3680 - Twentieth Century American Drama
Course Description

Topics in twentieth century drama drawn from the American, British, and/or world traditions. Formal structures of dramatic literature studied within contexts of performance, theatrical production, and specific dramatic careers. Authors may include O'Neill, Albee, Hansberry, Hellman, Stoppard, Wilson, and Churchill. Emphasizes American drama. [3] (US)

ENGL3680W - Twentieth Century American Drama
Course Description

Topics in twentieth century drama drawn from the American, British, and/or world traditions. Formal structures of dramatic literature studied within contexts of performance, theatrical production, and specific dramatic careers. Authors may include O'Neill, Albee, Hansberry, Hellman, Stoppard, Wilson, and Churchill. Emphasizes American drama. Serves as repeat credit for 3680. [3] (US)

ENGL3681 - Twentieth-Century Drama
Course Description

Topics in twentieth century drama drawn from the American, British, and/or world traditions. Formal structures of dramatic literature studied within contexts of performance, theatrical production, and specific dramatic careers. Authors may include O'Neill, Albee, Hansberry, Hellman, Stoppard, Wilson, and Churchill. Emphasizes British and world drama. [3] (US)

ENGL3683 - Contemporary British Literature
Course Description

The novel, short story, and verse in Great Britain since World War II. [3] (HCA)

ENGL3683W - Contemporary British Literature
Course Description

The novel, short story, and verse in Great Britain since World War II. Serves as repeat credit for 3683. [3] (HCA)

ENGL3692 - Desire in America: Literature, Cinema, and History
Course Description

The influence of desire and repression in shaping American culture and character from the mid-nineteenth century to the present. [3] (US)

ENGL3694 - America on Film: Art and Ideology
Course Description

American culture and character through film, film theory, and literature. [3] (US)

ENGL3695 - America on Film: Performance and Culture
Course Description

Film performance in the construction of identity and gender, social meaning and narrative, public image and influence in America. [3] (US)

ENGL3710 - Literature and Intellectual History
Course Description

Fiction, poetry, and prose writings that represent overarching themes in English and/or American literature across conventional historical periods in order to define and trace their genealogy and evolution. [3] (HCA)

ENGL3711 - Literature and Intellectual History
Course Description

The emergence of modern consciousness in the nineteenth and twentieth centuries. Serves as repeat credit for ENGL 3711W. [3] (HCA)

ENGL3711W - Literature and Intellectual History
Course Description

The emergence of modern consciousness in the nineteenth and twentieth centuries. Serves as repeat credit for ENGL 3711. [3] (HCA)

ENGL3720 - Literature, Science, and Technology
Course Description

The relationship of science and technology to literature, film, and popular media. Focus on such topics as digital technology, genetics, and the representation of science in particular periods, genres, movements, and critical theories. Repeat credit for students who have completed 3720W. [3] (P)

ENGL3720W - Literature, Science, and Technology
Course Description

The relationship of science and technology to literature, film, and popular media. Focus on such topics as digital technology, genetics, and the representation of science in particular periods, genres, movements, and critical theories. Repeat credit for students who have completed 3720. [3] (P)

ENGL3726 - New Media
Course Description

History, theory, and design of digital media. Literature, video, film, online games, and other interactive narratives. Not open to students who have completed 1111 section 60. Serves as repeat credit for CMA 3333 01, section 01 in Fall 2020, and for ENGL 3333, section 01 in Fall 2020. [3] (HCA)

ENGL3726W - New Media
Course Description

History, theory, and design of digital media. Literature, video, film, online games, and other interactive narratives. Serves as repeat credit for 3726. Not open to students who have earned credit for 1111 section 60. Serves as repeat credit for CMA 3333 01, section 01 in Fall 2020, and for ENGL 3333, section 01 in Fall 2020. [3] (HCA)

ENGL3728 - Science Fiction
Course Description

Social and historical developments within the genre. Works from the late nineteenth century to the present. Cultural issues, including race, gender, sexuality, violence, and the representation of science. Repeat credit for students who have completed 3728W. [3] (P)

ENGL3728W - Science Fiction
Course Description

Social and historical developments within the genre. Works from the late nineteenth century to the present. Cultural issues, including race, gender, sexuality, violence, and the representation of science. Repeat credit for students who have completed 3728. [3] (P)

ENGL3730 - Literature and the Environment
Course Description

Environmental issues from British, American, and global perspectives. Methodological approaches such as ecocriticism, environmental and social justice, ethics, and activism. The role of literature and the imagination in responding to ecological problems and shaping environmental values. [3] (HCA)

ENGL3730W - Literature and the Environment
Course Description

Environmental issues from British, American, and global perspectives. Methodological approaches such as ecocriticism, environmental and social justice, ethics, and activism. The role of literature and the imagination in responding to ecological problems and shaping environmental values. Serves as repeat credit for 3730. [3] (HCA)

ENGL3731 - Climate and Literature
Course Description

Literary responses to climate issues from British, American, and global perspectives. Methodological approaches such as ecocriticism, climate justice, ethics, and activism. [3] (HCA)

ENGL3734 - Literature and Law
Course Description

Study of the relationship between the discourses of law and literature. Focus on such topics as legal narratives, metaphor in the courts, representations of justice on the social stage. Repeat credit for students who have completed 3734W. [3] (HCA)

ENGL3734W - Literature and Law
Course Description

Study of the relationship between the discourses of law and literature. Focus on such topics as legal narratives, metaphor in the courts, representations of justice on the social stage. Repeat credit for students who have completed 3734. [3] (HCA)

ENGL3736 - Words and Music
Course Description

An investigation of works of literature that have inspired musical settings and the musical settings themselves. Emphasis on literary and musical analysis and interpretation. No musical background assumed. Repeat credit for students who have completed MUSL 2330. [3] (HCA)

ENGL3736W - Words and Music
Course Description

An investigation of works of literature that have inspired musical settings and the musical settings themselves. Emphasis on literary and musical analysis and interpretation. No musical background assumed. Repeat credit for students who have completed 3736 or MUSL 2330. [3] (HCA)

ENGL3740 - Critical Theory
Course Description

Major theoretical approaches that have shaped critical discourse, the practices of reading, and the relation of literature and culture. [3] (HCA)

ENGL3740W - Critical Theory
Course Description

Major theoretical approaches that have shaped critical discourse, the practices of reading, and the relation of literature and culture. Serves as repeat credit for 3740. [3] (HCA)

ENGL3742 - Feminist Theory
Course Description

An introduction to feminist theory. Topics include cross-cultural gender identities; the development of "masculinity" and "femininity"; racial, ethnic, class, and national differences; sexual orientations; the function of ideology; strategies of resistance; visual and textual representations; the nature of power. Serves as repeat credit for ENGL 3742W. [3] (P)

ENGL3742W - Feminist Theory
Course Description

An introduction to feminist theory. Topics include cross-cultural gender identities; the development of "masculinity" and "femininity"; racial, ethnic, class, and national differences; sexual orientations; the function of ideology; strategies of resistance; visual and textual representations; the nature of power. Serves as repeat credit for ENGL 3742. [3] (P)

ENGL3744 - Advanced Poetry
Course Description

Formal analysis and close reading of major poems in the extended canon of British and American poetry. Related examples of historical, theoretical, and applied criticism. [3] (HCA)

ENGL3746 - Workshop in English and History
Course Description

(Also listed as History 3746) Team-taught by a historian and an interdisciplinary scholar. Explores intersection of disciplines through close examination of texts in historical context. Preference to students majoring in the English-History program. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

ENGL3748 - Introduction to English Linguistics
Course Description

Systematic study of present-day English sounds, words, sentences, and the contexts of language production. Contemporary varieties of English. [3] (HCA)

ENGL3851 - Independent Study
Course Description

Designed primarily for majors. Projects are arranged with individual professors and must be confirmed with the director of undergraduate studies within two weeks of the beginning of classes; otherwise the student will be dropped from the 3851 rolls. May be repeated for a total of 6 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of ENGL 3851 and 3852] (No AXLE credit)

ENGL3852 - Independent Study
Course Description

Designed primarily for majors. Projects are arranged with individual professors and must be confirmed with the director of undergraduate studies within two weeks of the beginning of classes; otherwise the student will be dropped from the 3852 rolls. May be repeated for a total of 6 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of ENGL 3851 and 3852] (No AXLE credit)

ENGL3890 - Movements in Literature
Course Description

Studies in intellectual currents that create a group or school of writers within a historical period. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3890W - Movements in Literature
Course Description

Studies in intellectual currents that create a group or school of writers within a historical period. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3891 - Special Topics in Creative Writing
Course Description

Advanced instruction in creative writing in emerging modes and hybrid genres. May be repeated for credit if there is no duplication in topic. [3] (HCA)

ENGL3892 - Problems in Literature
Course Description

Studies in common themes, issues, or motifs across several historical periods. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3892W - Problems in Literature
Course Description

Studies in common themes, issues, or motifs across several historical periods. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3894 - Major Figures in Literature
Course Description

Studies in the works of one or two writers with attention to the development of a writer's individual canon, the biographical dimension of this work, and critical responses to it. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3894W - Major Figures in Literature
Course Description

[Studies in the works of one or two writers with attention to the development of a writer's individual canon, the biographical dimension of this work, and critical responses to it. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3896 - Special Topics in Investigative Writing in America
Course Description

Course will be taught by a distinguished visiting journalist from a major U.S. newspaper or magazine. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3; maximum of 6 credits total for all semesters of ENGL 3896] (No AXLE credit)

ENGL3896W - Special Topics in Investigative Writing in America
Course Description

Course will be taught by a distinguished visiting journalist from a major U.S. newspaper or magazine. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3; maximum of 6 credits total] (No AXLE credit)

ENGL3897 - Special Topics in Critical Theory
Course Description

Diverse range of literary, philosophical, cultural, and political texts. May be repeated for credit if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3] (HCA)

ENGL3897W - Special Topics in Critical Theory
Course Description

Diverse range of literary, philosophical, cultural, and political texts. May be repeated for credit if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3] (HCA)

ENGL3898 - Special Topics in English and American Literature
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3898W - Special Topics in English and American Literature
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

ENGL3899 - Special Topics in Film
Course Description

Theory and practice of cinema as an aesthetic and cultural form. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 6 credits total for all semesters of ENGL 3899] (HCA)

ENGL4960 - Senior Year Capstone
Course Description

Topic chosen by the instructor. Prerequisite: 2200. [3] (No AXLE credit)

ENGL4998 - Honors Colloquium
Course Description

Background for writing the honors thesis. Emphasis on research methods, critical approaches, and the students' own projects. Limited to seniors admitted to the English Honors Program. [3] (No AXLE credit)

ENGL4999 - Honors Thesis
Course Description

Prerequisite: 4998. [3] (No AXLE credit)

English Education

ENED2200 - Exploring Literature for Children
Course Description

Explores characteristics of good literature for children ages birth to 12, authors and illustrators of the genre, and issues in the area of children's literature. [3]

ENED2430 - Fostering Language in Diverse Classrooms
Course Description

Overview of language learning, emphasizing ages 3 - 8 and the role of teachers and parents in fostering growth. Variability associated with culture, income, home language and individual child characteristics is examined from developmental and sociolinguistic perspectives. Students examine language use and teaching as part of an 8 hour practicum in an early childhood classroom. [3]

ENED3310 - Language Study in the Secondary Classroom
Course Description

Investigates various methods of approaching grammar, vocabulary spelling, semantics, and bi-dialectism in the English classroom. For teachers and prospective teachers of middle school and high school English. [3]

ENED3320 - Untapped Potential: The Power of Books for Fostering Language and Learning
Course Description

This course fosters an understanding of the importance of developing oral language and thinking skills in read alouds and develops students' competence in implementing instructional strategies in their work with children and families. Course content explores historical trends and lines of inquiry in storybook reading research over the past four decades and engages students in critical conversations about the extent to which current pedagogical practices reflect or rebuff research recommendations. The course explores book selection, vocabulary development, inferential reasoning, the use of repeated readings, responding to students' questions and confusions, and crafting high-cognitive demand discussions in narratives read aloud to children from Pre-K through fourth grade. The roles of adults and approaches to sharing books with children are explored from developmental and cultural perspectives. Content includes careful study and discussion of narrative picture books, criteria for identifying high-quality literature, and extracting worthy story themes with an aim toward developing skill in using books that embody humanizing pedagogies and diverse perspectives. Assignments involve the application of course content to teacher observations, the implementation of multiple readings in embedded fieldwork experiences, book studies, and the opportunities for special projects related to nuanced interest areas. [3]

ENED3340 - Reading and Learning with Print and New Media
Course Description

Studies print and technology-based approaches to improving reading and content area learning in grades 6-12 with a special emphasis on diverse learners and struggling readers. Drawing on research-based practice, students learn to design, enact, and assess effective reading and literacy instruction. [3]

ENED3350 - Literature, Popular Culture, and New Media
Course Description

Examines a wide range of multigenre, multimodal, and digital texts appropriate for readers of middle school and high school age. Considers the influence of popular culture and digital technologies on young adult literature. Includes materials and texts for readers of various ability levels. [3]

ENED3357 - Literature, Pop Culture, and New Media
Course Description

Considers the influence of popular culture and digital technologies on young adult literature and the ways in which societal critique, role of the media, and negotiating identity categories play out in those texts. Examines a wide range of Multigenre, multimodal, and digital fiction focused on various themes such as Real and Imagined Worlds: Gaming and Technology in Texts, Vampires, Zombies, Werewolves and Monsters: Imagining the Other, ans Who am I? Race, Class, Gender, and Sexual Identity in Literature. [3]

ENED3370 - Teaching Literature and New Media in the Secondary School
Course Description

Students study how pedagogy might be developed that connects traditional literature instruction with media popular cultural media. Methods and theories for reading and teaching short stories, poetry, and novels are juxtaposed and interwoven with methods and theories for reading and teaching web sites, comics, film, and other media. Prerequisite: EDUC 3310 or consent of instructor. Corequisite: ENED 3371. [3]

ENED3371 - Professional Year Practicum
Course Description

Observation, participation, and teaching in middle school and secondary school settings. Corequisite: ENED 3370. [1-3]

ENED3380 - Teaching Writing in Secondary Schools
Course Description

Designed to encourage student teachers to examine the complexities of teaching writing in middle and high school settings and to develop a theoretically sound methodology that will allow them to design meaningful, engaging, and thoughtful writing instruction. [3]

ENED3400 - Harry Potter and Children's Literature
Course Description

Students will examine British Literature related to J.K. Rowling's novels. Students will be asked to relate what they learn from other children's literature to the characters, plot, and themes of the Harry Potter novels as well as the opportunity to perform a variety of critical analyses of a social/cultural phenomena with progressive young adult literature. Additionally, students will explore the film versions of all novels discussed to analyze and critique the adaptations. This is a weekend course that includes week-long travel to the United Kingdom where students will engage in the stories in an experiential journey of local UK sites, studios, and museums. [3]

ENED3410 - Literature of Social Transformation
Course Description

Historical events, issues, and movements are often explored in literature for children and adolescents. The literature helps make history come alive. This class will focus on stories relating to the Civil Rights Movement that led to social transformation the United States. In this weekend course, students will explore books written for children/young adults, discuss specific episodes of the Movement where youth had great impact, and visit libraries, museums, and related sites. [3]

ENED3850 - Independent Study in English Education
Course Description

Semi-independent study on selected topics in English education. Consent of supervising instructor required. May be repeated. [1-3]

ENED3890 - Special Topics in English Education
Course Description

Exploration of special topics related to English education. May be repeated with change of topic. [1-3]

ENED4963 - Student Teaching Seminar: Secondary
Course Description

Seminar to accompany EDUC 4953. A $300.00 Teacher Performance Assessment fee is associated with this course. [3]

Ensembles

MUSE1010 - Instrumental Ensembles
Course Description

Open by audition to all Vanderbilt students. Musicians participate in orchestra, wind ensembles, and/or a variety of smaller ensembles on a rotational basis through the course of the semester. Performances include symphonic repertoire from the Classical and Romantic periods as well as standard and new repertoire from Baroque to Contemporary. At least three formal concerts are presented each semester. [1] Fountain, Verrier.

MUSE1020 - Vanderbilt University Singers
Course Description

Open by audition to all Vanderbilt students regardless of major. This choral ensemble performs a wide variety of choral music spanning Renaissance to contemporary music, and often combines with the Vanderbilt Symphony Orchestra on large works. At least two formal concerts per semester. [1] Biddlecombe.

MUSE1030 - Vanderbilt Opera Theatre
Course Description

Open by audition to all Vanderbilt students. Performance material chosen from all forms of lyric theatre: standard operatic repertoire, operetta, and American musical theatre. At least one production is presented. FALL. [1] Shay.

MUSE1200 - Steel Drum/Pan Ensemble
Course Description

Open to all members of the Vanderbilt community, this course provides a laboratory and performance experience drawing on Caribbean steel drums/pans with emphasis on the music and dance repertories of the island of Trinidad. Lecture-demonstrations and rehearsals in one weekly two-hour session. At least one public performance each semester. No previous experience required. [1] Britain.

MUSE1210 - Steel Drum/Pan Ensemble
Course Description

Open to all members of the Vanderbilt community, this course provides a laboratory and performance experience drawing on Caribbean steel drums/pans with emphasis on the music and dance repertories of the island of Trinidad. Lecture-demonstrations and rehearsals in one weekly two-hour session. At least one public performance each semester. Ability to read musical notation required. [1] Britain.

MUSE1220 - Steel Drum/Pan Ensemble
Course Description

Open to all members of the Vanderbilt community, this course provides a laboratory and performance experience drawing on Caribbean steel drums/pans with emphasis on the music and dance repertories of the island of Trinidad. Lecture-demonstrations and rehearsals in one weekly two-hour session. At least one public performance each semester. Ability to read musical notation required. Prerequisite: MUSE 1200 or 1210. [1] Britain.

MUSE1230 - African Performing Ensemble
Course Description

Open to all members of the Vanderbilt community, this course provides a laboratory and performance experience drawing on traditional African musical instruments (drums, percussion, winds) with an emphasis on West African (Ghana) and East African (Uganda) music and dance repertories. Lecture-demonstrations and rehearsals in one weekly two-hour session. At least one public performance each semester. No previous experience required. [1] Ahima.

MUSE1232 - Advanced African Drumming
Course Description

Advanced laboratory and performance experience drawing on traditional African musical instruments (drums, percussion, winds) with an emphasis on West African (Ghana) and East African (Uganda) music and dance repertories. Lecture-demonstrations and rehearsals in one weekly two-hour session. At least one public performance each semester. Prerequisite MUSE 1230 or permission from the instructor. [1]

MUSE1310 - Jazz Ensemble: Big Band
Course Description

Open by audition to all Vanderbilt students, this ensemble performs both traditional and modern jazz styles, including dance band, swing, contemporary, and charts currently under development. Improvisation, jazz timbres, and other idiomatic concepts explored through lecture-demonstration and performance. At least one concert is presented each semester. Co-requisite: JAZZ 1000. [1] Middagh

MUSE1320 - Jazz Ensemble: Small Combo
Course Description

Open by audition to all Vanderbilt students. Provides focused laboratory training for performance of composed and improvised small combo jazz traditions. Discussion and application of techniques associated with solo, sectional, and ensemble performance in jazz. At least one concert is presented each semester. Co-requisite: JAZZ 1000. [1]

MUSE1330 - Blair Jazz Choir
Course Description

Open by audition to all Vanderbilt students; ensemble is limited to 12 voices, plus rhythm section. Repertoire includes scat, contemporary, and standard jazz. On- and off-campus performances throughout the semester. [1] Watson Utterstrom

MUSE1340 - Special Ensemble in Jazz and Global Music
Course Description

Annually rotating ensemble focused on a particular musical style representative of jazz or global music traditions. Open to all undergraduates. Co-requisite: JAZZ 1000. [1]

MUSE2120 - Vanderbilt Chorale
Course Description

Open by audition to all Vanderbilt students, this select 36-40 voice choral ensemble performs music in a variety of styles. At least two formal concerts each semester. [1] Biddlecombe.

MUSE2210 - Instrumental Chamber Music
Course Description

Open to all Vanderbilt students by audition or upon recommendation of the private instructor. Size of ensembles may vary. One hour weekly coaching. Two hours of additional rehearsal each week. [Variable credit: ¬Ω, 1, or 2 each semester] Performance faculty. [0.5-2]

MUSE2220 - Chamber Music: Percussion
Course Description

Open to percussion majors and minors. Size of ensembles will vary. One hour weekly coaching and two hours of additional rehearsal (independent of coaching) expected each week. [¬Ω or 1] Jung.

MUSE2230 - Chamber Music: Sonata Class for Strings and Piano
Course Description

One hour weekly class for performance and study of string (violin, viola, cello, bass) and piano sonatas from the standard repertoire, baroque through modern, with each sonata duo receiving thirty minutes of coaching within the class time. Performance of complete sonata during the last class of the semester. Two hours of additional rehearsal each week. Open by consent of instructor. [1] Dorfman, Plummer.

MUSE2240 - Chamber Music: String Quartet
Course Description

Open by consent of instructor. One hour of coaching and at least two hours of additional rehearsal each week. [Variable credit: ¬Ω, 1, or 2 each semester] Kochanowski.

MUSE2270 - Baroque Chamber Music
Course Description

Open to all Vanderbilt students with experience on Baroque instruments or upon recommendation of the private instructor. Size of ensembles may vary. Students will receive one hour of coaching and are expected to rehearse at least two additional hours each week.

MUSE2280 - Chamber Music: Contemporary Music Ensemble
Course Description

Open to all Vanderbilt students by audition, this ensemble will perform instrumental and vocal chamber works of the modern and contemporary periods. Includes weekly coaching and two required hours of additional rehearsal (independent of coaching) each week. [1]

MUSE2300 - Collaborative Techniques for Pianists
Course Description

Basic ensemble techniques in vocal and instrumental collaboration, including orchestral reductions, instrumental repertoire, recitatives/arias, songs, and introduction to diction/translation of song texts. Both group and individual coaching. Open to B.Mus. and B.Mus.Arts piano majors or by consent of instructor.

MUSE2310 - Collaborative Piano: Instrumental
Course Description

Introduces pianists to collaboration with instrumentalists. Weekly coaching with piano instructor and 5 hours practice/rehearsal per week. Standard instrumental repertoire will be assigned. Open by consent of instructor. [Variable credit: ¬Ω, 1, or 2 each semester] Dorfman, Nies, Melissa Rose.

MUSE2320 - Collaborative Piano: Vocal
Course Description

Introduces pianists to collaboration with singers. Weekly coaching with piano instructor and 5 hours practice/rehearsal per week. Focus on standard art song and opera repertoire. Open by consent of instructor. [Variable credit: 1-2 each semester] Dorfman, Nies, Melissa Rose.

MUSE2330 - Vocal Chamber Music
Course Description

Open by consent of the instructor. One hour weekly coaching for vocal/instrumental duos or ensembles, including singer/piano duos. Two hours of additional rehearsal each week. [Variable credit: ¬Ω, 1, or 2 each semester] Dorfman, Melissa Rose.

Environmental Engineering

ENVE3610 - Sustainable Development
Course Description

Quantitative investigation of the role of adequate and renewable resources for continual economic development. Past and present resource challenges, influences of indigenous, national, and international cultures, land use practices, social policy, and economic strategies on infrastructure development. Future challenges posed by climate change, and how market- and government-based policies may be applied in conditions of uncertainty to encourage sustainable development. SPRING. [3]

ENVE4305 - Enterprise Risk Management
Course Description

Development of an organization-wide risk management program for protecting human health, the environment and business continuity. Focus on defining an all-hazards risk management process and program implementation, performing risk assessments, determining and selecting appropriate risk reduction strategies, and influencing risk management decisions internally and externally. Applications drawn from natural disasters, man-made accidents and intentional acts. Prerequisite: Senior standing. SPRING. [3]

ENVE4600 - Environmental Chemistry
Course Description

Theoretical aspects of physical, organic, and inorganic chemistry applied to environmental engineering. Estimation of chemical parameters based on thermodynamic and structural activity relationships, pH as a master variable, equilibrium processes in the environment, including the carbonate system, metal complexation and precipitation. Prerequisite: CHEM 1601. FALL. [3]

ENVE4605 - Environmental Thermodynamics, Kinetics, and Mass Transfer
Course Description

Examination of fundamental environmental processes and phenomena. Uses of equilibrium phenomena, process rate and mass transport phenomena to solve a broad range of environmental problems. Prerequisite: CHEM 1602, MATH 2420, CE 3600. SPRING. [3]

ENVE4610 - Biological Processes in Environmental Systems
Course Description

Principles of biology and their application to wastewater treatment processes with emphasis on microbial ecology, bioenergetics, and the role of chemical structure in biodegradability. Utilization kinetics of inhibitory and non-inhibitory organic compounds. Biological process analysis and design (aerobic and anaerobic) for municipal and industrial wastewaters, using a mass balance approach. SPRING. [3]

ENVE4615 - Environmental Assessments
Course Description

Design and conduct of environmental assessments to evaluate risks posed by infrastructure systems or environmental contamination. Impact analyses for sources, infrastructure modifications, due diligence environmental audits, and contaminated site remedial investigations. Prerequisite: Senior standing. FALL. [3]

ENVE4620 - Environmental Characterization and Analysis
Course Description

Acquisition and interpretation of environmental data. Principles of chemical measurement, sample collection and sample program design; laboratory safety and good laboratory practices; analytical instrumentation and methods; quality assurance and quality control; and statistical interpretation of data. Hands-on experience through demonstrations featuring state-of-the-art analytical instrumentation. Prerequisite: CE 3600, ENVE 4600. SPRING. [3]

ENVE4625 - Environmental Separations Processes
Course Description

Fundamentals and applications of separations processes relevant to water and wastewater treatment and other environmental systems. Topics include coagulation/flocculation, sedimentation, granular filtration; advanced separation processes such as various membrane processes, absorption, ion exchange, thermally driven separations, and electrically driven separations including electrodialysis and capacitive deionization. SPRING. [3]

ENVE4700 - Energy and Water Resources
Course Description

Scientific, technological, philosophical, and social issues surrounding approaches to carbon-based energy and alternative energy resources, management of carbon through sequestration, supplying and treating water for agriculture, communities, and industry, and changing climate impacts on regional distribution of water resources. SPRING. [3]

ENVE4705 - Physical Hydrology
Course Description

Development of fundamental bases of hydrological processes. Land-atmosphere processes, surface-water flows, soil moisture dynamics, and groundwater flows. Exposition of physical principles, their embodiment in mathematical models, and their use in interpreting observations in the field and laboratory. Prerequisites: CE 3700 or ME 3224 or ChBE 3300 or EES 4550. FALL. [3]

ENVE4710 - Hydrology
Course Description

The hydrologic cycle, study of precipitation, evapotranspiration, hydrometeorology, stream flow, flood flow, flood routing, storm sewer design, detention basin design, and water quality. Prerequisite: CE 3700, CE 3705. FALL. [3]

ENVE4715 - Groundwater Hydrology
Course Description

The occurrence and flow of ground water. Basic concepts of the effects of varying permeability and capillarity on seepage flow. Flow toward wells, through dikes, and beneath dams. Prerequisite: MATH 2420, CE 3700. SPRING. [3]

ENVE4720 - Surface Water Quality Modeling
Course Description

Analysis of physical, chemical, biological, and physiological contaminants in streams, lakes, and estuaries, and surface water/groundwater interfaces. Analytical and numerical modeling techniques. One- and two-dimension computer simulation of surface water quality. Prerequisite: ENVE 4605. SPRING. [3]

ENVE4800 - Nuclear Environmental Engineering
Course Description

The nuclear fuel cycle and environmental and societal impacts associated with its traditional implementation. Technical and programmatic challenges associated with fuel production, and waste management including processing, storage, transportation, decontamination, decommissioning, and environmental restoration. Technologies and approaches for reducing impacts of the nuclear fuel cycle. Prerequisite: Senior or graduate standing. SPRING. [3]

ENVS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

ENVS1101 - Foundations of Climate Studies
Course Description

Scholarship from across the natural sciences, social sciences, and humanities. History and science of climate change;, the cultural and political-economic systems that shape climate injustice. Challenges and possible solutions to the climate crisis. [3] (P)

ENVS3301 - NGOs, Society, and Climate Change
Course Description

Nonprofits as complex and diverse actors engaged in climate mitigation, climate adaptation, policy, and energy justice. Logics of nonprofit organizations; grant-writing. Perspectives and insights from sociology, political science, and nonprofit studies. [3] (SBS)

ENVS3851 - Independent Research and Writing
Course Description

Independent research on issues of theoretical and/or practical relevance to understanding and addressing climate & environmental change. Students may enroll in more than one section of this course each semester. May be repeated for a total of 6 credits. [1-6] (No AXLE credit).

ENVS4101 - Society and the Environment Capstone
Course Description

The relationship between society and the environment. Sustainability, adaptation, climate science, and policy. Open only to junior and senior ENVS minors. [3] (SBS)

ENVS4101W - Society and the Environment Capstone
Course Description

The relationship between society and the environment. Sustainability, adaptation, climate science, and policy. Open only to junior and senior ENVS minors. Repeat credit for students who have completed ENVS 4101. [3] (SBS)

ENVS4961 - Special Topics
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

ENVS4981 - Climate Studies Honors Rsrch
Course Description

Research and writing supervised by program faculty. Students are expected to take 3 credits in the fall and 3 credits in the spring term. Open only to honors candidates. Prerequisite or corequisite: completion of methods and practices requirement for the Climate Studies major. [3; maximum of 9 credits total for all semesters of 4981] [3] (No AXLE credit)

European Studies

EUS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

EUS2201 - European Society and Culture
Course Description

An interdisciplinary survey of European society, culture, and politics since 1900. [3] (INT)

EUS2203 - The Idea of Europe
Course Description

European identity from ancient ideals to its reality as the European Union. Emphasis on Europe as cultural construct and definable space. Historical, political, religious, philosophical, and cultural movements for Europe's claim to legitimacy. [3] (INT)

EUS2208 - Conspiracy Theories and Rumors in European and U.S. History
Course Description

From 1600 to the present. Jesuits, Jews, and the Illuminati. The American and French Revolutions, McCarthyism, UFOs, and New World Order theories. [3] (INT)

EUS2210 - European Avant-Garde Movements
Course Description

Twentieth-century European aesthetic, political, and social imagination from Expressionism and Dadaism to Fluxus and Happenings. Connection between aesthetics and capitalism. Impact of World Wars on art and literature, gender roles, and 'exoticism'. Art as an institution and literature as performance. [3] (INT)

EUS2212 - Revolutions and Post-Communisms in Eastern Europe and Eurasia, 1981-2010
Course Description

Life in the Soviet Imperium. Revolutions of 1989 in Eastern Europe. Disintegration of the U.S.S.R., 1989-1991. Challenges of neoliberal transitions to free-market democracies. Post-socialist culture. Ecology and environmentalism; globalization; gender; religion and ideology; mass media; violence; ethno-nationalism; and authoritarianism. Taught in English. Serves as repeat credit for students who have earned credit for HIST 2212, EUS 2212 or RUSS 2810/5810. [3] (P)

EUS2213 - Introduction to European Intellectual Traditions: Ancient and Medieval
Course Description

Philosophical, religious, and literary foundations. Texts by Homer, Virgil, Augustine, and Dante together with background from the Bible. [3] (HCA)

EUS2214 - Introduction to European Intellectual Traditions: Renaissance and Modernity
Course Description

Great books of western intellectual traditions through Renaissance to Modernity. Science, technology, religion, imagination, and human individuality. Texts by Dante, Shakespeare, Cervantes, and Goethe. [3] (HCA)

EUS2220 - Religion and Politics in Modern Europe, 1648-Present
Course Description

Toleration in the Enlightenment; the French Revolution; antisemitism; genocide; secularism and political Islam. [3] (INT)

EUS2222 - Right-wing Populist Parties: Populism in Europe and Beyond
Course Description

Theoretical and historical concepts of populism. Case studies of populist parties in France, Italy, the Netherlands, Austria, Germany, Poland, and Hungary. [3] (INT)

EUS2228 - The Flight of Vulnerable Migrants to Europe
Course Description

Exploration of refugees' flight from persecution, and their search for protection in Europe. International Refugee Law; "refugee-creating" events in Africa and the Middle East. Geographic pathways and legal processes followed by those who have sought protection. Depictions of their plight in film, music, literature, and the visual arts. [3] (INT)

EUS2230W - European History and Culture Through Immersive Gaming
Course Description

Experiential, game-based study of key historical moments in European history using "Reacting to the Past" (RTP) pedagogy for engaged classroom learning. Offered on a graded basis only. Serves as repeat credit for RPW 3890W-01 Revolutions, offered spring 2023. [3] (HCA)

EUS2240 - Topics in European Studies
Course Description

Topics of special interest on modern European culture or society. May be repeated for credit when topics vary. [3] (No AXLE credit)

EUS2260 - European Cities
Course Description

The history, politics, society, or culture of important European cities. Content varies according to location and disciplinary focus. The course is taught during the May Session in Europe with the cities themselves complementing daily lectures and site visits. Course requirements include preliminary work on campus, a research paper, and one or more examinations. May be repeated for credit in different cities. [3] (INT)

EUS2800 - Pursuing Utopia: Social Justice & Romanticism in the Alps
Course Description

Social justice and literary experiments of writers who sought alternative approaches to art and society in the 'neutral' Alpine settings of Europe. [3] (INT)

EUS3333 - The European Refugee Experience: From Populism to Covid-19
Course Description

Journey of refugees towards protection in Europe; overview of international refugee law. Myriad 'refugee-creating' events, intermediaries, and challenges. [3] (INT)

EUS3850 - Independent Readings and/or Research
Course Description

Independent readings and/or research on approved topics relating to modern European society and culture. [Variable credit: 1-3 each semester, maximum of 6 hours in 3850 and 3851 combined] (No AXLE credit)

EUS3851 - Independent Readings and/or Research
Course Description

Independent readings and/or research on approved topics relating to modern European society and culture. [Variable credit: 1-3 each semester, maximum of 6 hours in 3850 and 3851 combined] (No AXLE credit)

EUS4960 - Senior Tutorial
Course Description

Supervised readings, joint discussions, and independent research on a modern European topic to be selected in consultation with the director of European Studies. Open only to juniors and seniors. [3] (No AXLE credit)

EUS4998 - Senior Honors Research
Course Description

Open only to seniors who have been admitted to the European Studies departmental honors program. [3] (No AXLE credit)

Foreign Language Education

FLED3850 - Independent Study in Foreign Language Education
Course Description

Semi-independent study on selected topics in foreign language education. May be repeated. Consent of instructor required. [1-3]

FLED3890 - Special Topics in Foreign Language Education
Course Description

Exploration of special issues or topics related to foreign language education. May be repeated for credit with change of topic. [1-3]

French

FREN1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

FREN1101 - Introduction to French in the World
Course Description

Reading, writing, speaking, and listening through an exploration of the French-speaking world. For students who have studied little or no French. No credit for students who have earned credit for a more advanced French language course. [3] (No AXLE credit)

FREN1102 - Introduction to French in the World
Course Description

Continuation of 1101. Study of the language through an exploration of the French-speaking world. No credit for students who have earned credit for a more advanced French language course. [3] (INT)

FREN1103 - Accelerated Introduction to French in the World
Course Description

Intensive course for students who have studied one to three years of French. No credit for students who have earned credit for 1101, 1102, or a more advanced French language course. [3] (INT)

FREN1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

FREN2203 - Intermediate French Language and Cultures
Course Description

French and Francophone cultures through readings, film, and discussion. Designed for students who have completed elementary-level French. No credit for students who have earned credit for a more advanced French language course. Prerequisite: 1102 or 1103. [3] (INT)

FREN2501W - French Composition and Grammar
Course Description

Prerequisite: 2203 or the equivalent. No graduate credit. No credit for students who have earned credit for a more advanced French language course. [3] (INT)

FREN2611 - Phonetics
Course Description

Methodical comparison of French and English sounds. Correct formation of French sounds; oral exercises and aural training. Prerequisite: 2501W. [3] (INT)

FREN2614 - Advanced Conversational French
Course Description

Emphasis on idiomatic usage and strategies for oral communication. Prerequisite: 2501W. [3] (P)

FREN2700 - Great French and Francophone Works in English Translation
Course Description

Middle Ages to modernity. Emergence of the modern nation-state and liberal ideals of the eighteenth-century Enlightenment; French Revolution and modernist movements in the arts. Troubadours, Romance of Rose, Racine, Voltaire, Diderot, Rousseau, Hugo, Cézanne, Flaubert, Césaire, Condé, Djebar, Sembéne. [3] (INT)

FREN3001 - Texts and Contexts: Middle Ages to the Enlightenment
Course Description

Literary works from 500 to 1800 in historical context. Analysis and discussion of a variety of texts (novels, plays, poems and non-fiction) as well as social and cultural history. Not open to students who have earned credit for 3101. Prerequisite: 2501W. [3] (INT)

FREN3002 - Texts and Contexts: Revolution to the Present
Course Description

Literary works from 1800 to the present in historical context. Analysis of a variety of texts (novels, plays, poems and non-fiction) as well as social and cultural history. Not open to students who have earned credit for 3102. Prerequisite: 2501W. [3] (INT)

FREN3111 - French for Business
Course Description

Specialized vocabulary of business terms, business letters, and exercises in comprehension and translation. Prerequisite: 2501W. [3] (INT)

FREN3112 - Medical French in Intercultural Contexts
Course Description

Advanced conversation course dealing with medical issues in the Francophone world. Prerequisites: 2501W. [3] (HCA)

FREN3113 - Advanced French Grammar
Course Description

A systematic review with particular attention to morphology and syntax. Prerequisite: 2501W. [3] (INT)

FREN3114 - French for Law and Diplomacy in a Global Context
Course Description

Structural differences between the legal systems of the United States and the Francophone world. Governmental structures, jurisprudence, international governing organizations, and international law. Careers and professional life in the legal field. Offered on a graded basis only. Prerequisite: 2501W. [3] (INT)

FREN3185W - The Refugee Experience in France and Italy
Course Description

French and Italian culture, migration, global studies, refugees. Legal issues, current events, and cultural representation of vulnerable migrants. Taught in English. [3] (P)

FREN3222 - The Early Modern Novel
Course Description

Development of the novel as a genre in the seventeenth and eighteenth centuries; its changing social, intellectual, and political context. Prerequisite: 2501W. [3] (HCA)

FREN3224 - Media Medievalisms
Course Description

Pre-modern French society through medieval literature and history. Study of the imagined society recreated in modern medieval and Renaissance "faires," films, novels, and video games. Prerequisite: 2501W. [3] (HCA)

FREN3230 - French and Francophone Cinema
Course Description

The themes and art of film in France and the French-speaking world. Offered in French at Vanderbilt in France and in English at Nashville. When offered in English, this course does not count toward the minor, and writing must be done in French to count toward the major. [3] (INT)

FREN3232 - Introduction to Francophone Literature
Course Description

The geopolitical, linguistic, and literary dimensions of the notion "La Francophonie." Readings will be chosen from fictional and nonfictional works from Africa, Canada, the Caribbean, countries bordering the Indian Ocean, and Vietnam. Prerequisite: 2501W. [3] (P)

FREN3233 - Francophone Caribbean Literature
Course Description

Major literary works of Haiti, Martinique, Guadeloupe, and French Guyana. Historical, geographic, and cultural context. Comparative approaches to the Hispanic and Anglophone Caribbean. Prerequisite: 2501W. [3] (INT)

FREN3234 - Contemporary Francophone Press
Course Description

Critical study of the Francophone press (print, television, radio, internet) in Europe, Africa, Canada, Louisiana, Islands in the Caribbean and Indian Ocean (Madagascar, Seychelles). Current issues in the media. Comparisons with the U.S. press. Prerequisite: 2501W. [3] (HCA)

FREN3332 - Popular Music and Social Change in France and the Francophone World
Course Description

Culture and history. Popular musical production in France, Canada, Haiti, the Caribbean, the Maghreb, and Africa. Granular analyses of musical and lyrical content; how popular music both spearheaded and reflected social issues and change, especially beginning in the 1960s. Prerequisite 2501W. [3] (INT)

FREN3620 - Age of Louis XIV
Course Description

Literature and society in the reign of Louis XIV. Authors include Mme de Lafayette, La Fontaine, Moli√®re, Pascal, Racine, and Mme de S√©vign√©. Prerequisite: 2501W. [3] (HCA)

FREN3621 - Enlightenment and Revolution
Course Description

Major writers of the eighteenth century, including Montesquieu, Voltaire, Rousseau, Diderot; literature of the Revolution. [3] (HCA)

FREN3622 - Identity and Family in French & Francophone Culture
Course Description

Family in relation to identity, history, and memory in France. Relationship between the individual and the community. "Self-inventing" individuals against families and communities. Key contemporary French and Francophone texts and films. Prerequisite: 2501W. [3] (INT)

FREN3634 - Parisian Geographies: Paris in 19th and 20th century Art and Literature
Course Description

The changing physical landscape and cultural significance of Paris in literature, painting, photography, and film of the 19th and 20th centuries. No credit for students who have earned credit for 3891 offered Fall 2018. Prerequisite 2501W. [3] (HCA)

FREN3730 - The Beat Generation's French Connection
Course Description

The Beats' ties to Paris and to Quebec through French-Canadian Jack Kerouac. Antonin Artaud, Jean Genet, Arthur Rimbaud, and Marquis de Sade. Prerequisite: 2501W. [3] (INT)

FREN3850 - Independent Study
Course Description

Content varies according to the needs of the individual student. Primarily designed to cover pertinent material not otherwise available in the regular curriculum. May be repeated for a total of 12 credits over a four-semester period, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 12 credits total for four semesters of FREN 3850] (No AXLE credit)

FREN3880 - Internship Training in France
Course Description

Under faculty supervision, students intern in public or private organizations, and complete research and readings. Offered on a pass/fail basis only and must be taken concurrently with 3881. Corequisite: 3881. [1] (No AXLE credit)

FREN3881 - Internship Readings and Research in France
Course Description

Under faculty supervision, students intern in public or private organizations, and complete research and readings. Must be taken concurrently with 3880. Corequisite: 3880. [3] (No AXLE credit)

FREN3891 - Special Topics in Traditions
Course Description

Topics vary. Prerequisite: 2501W. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

FREN3892 - Special Topics in Communications and Intersections
Course Description

Topics vary. Prerequisite: 2501W. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

FREN4023 - The African Novel
Course Description

The postcolonial Francophone novel of Subsaharan Africa illustrating topics such as tradition and modernity, the identity of Africa, the representation of women, and the ideology of language. Prerequisite: 2501W. [3] (INT)

FREN4025 - From Carnival to the "Carnivalesque"
Course Description

Carnival themes of transgression, the grotesque, feasting, and the "fool." Rabelais to contemporary works. Offered on a graded basis only. Prerequisite: 2501W. [3] (P)

FREN4027 - Emile Zola: From Naturalist Novels to Social Activism
Course Description

The author's method of researching subject matter and style of writing. "Environmental" influences of violence, prostitution, and alcoholism. The idea of the "public intellectual." Prerequisite: 2501W. [3] (HCA)

FREN4029 - Twentieth-Century French Literature
Course Description

Critical readings of representative works organized thematically with emphasis on their contextual and intertextual relationships. Prerequisite: 2501W. [3] (HCA)

FREN4222 - Terrorism and Contemporary Theater
Course Description

Religious and ideological terrorism in Francophone contemporary theater (North African and Middle-Eastern dramaturges). Theatrical nature of terrorism; spectacle as predominant motif; analysis of theatrical mise-en-scene. Cult of martyrdom; notions of sacrifice, shame, duty and honor through recent historical events. [3] (INT)

FREN4232 - Literature and Law
Course Description

Confessions, murder, argumentation, interpretation, and the representation of "the criminal" in literary and legal texts from traditional French writings. Offered on a graded basis only. Prerequisite: 2501W. [3] (P)

FREN4234 - Dangerous Bodies: Women in 19th Century Art and Literature
Course Description

Nineteenth century novels and poetry with an emphasis on representations of the female body. Painting and photography. No credit for students who have earned credit for 3891 offered Fall 2017. Prerequisite: French 2501W. [3] (HCA)

FREN4320 - French Women and Feminisms
Course Description

Feminist themes in twentieth-century French literature and criticism. Authors include Beauvoir, Duras, Sarraute, Irigaray, Cixous. Prerequisite: 2501W. [3] (P)

FREN4430 - Minority Issues & Immigration in France
Course Description

Conflict between Jews and Arab-Muslims in France through analyses of historical accounts, news reports, and literary and cultural manifestations. From the origins of Zionism (~1885), to the Holocaust, and to the Intifadas of 1987 and 2000 and the Charlie Hebdo and kosher supermarket massacres of 2015 in Paris. Prerequisite 2501W. [3] (P)

FREN4432 - French Intellectual History
Course Description

From Montaigne to Sartre and beyond. Critical discourses and major philosophical texts. Prerequisite: 2501W. [3] (HCA)

FREN4998 - Senior Honors Thesis
Course Description

[3] (No AXLE credit)

FREN4999 - Senior Honors Thesis
Course Description

[3] (No AXLE credit)

Gender and Sexuality Studies

GSS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

GSS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

GSS1150 - Sex and Gender in Everyday Life
Course Description

Sex and gender roles in culture and society. Gender, race, and class. Women and men in literature, art, culture, politics, institutions. Repeat credit for students who have completed 1150W. [3] (P)

GSS1150W - Sex and Gender in Everyday Life
Course Description

Sex and gender roles in culture and society. Gender, race, and class. Women and men in literature, art, culture, politics, institutions. Repeat credit for students who have completed 1150. [3] (P)

GSS1160 - Sex and Society
Course Description

Historical, cultural, and social contexts of sexual diversity, discrimination, and sexual violence. Understanding the centrality of sexuality to identity; challenging harmful modes of sexual expression; developing critical awareness of sex and sexuality. [3] (P)

GSS1160W - Sex and Society
Course Description

Historical, cultural, and social contexts of sexual diversity, discrimination, and sexual violence. Understanding the centrality of sexuality to identity; challenging harmful modes of sexual expression; developing critical awareness of sex and sexuality. Repeat credit for students who have completed 1160. [3] (P)

GSS1272 - Feminism and Film
Course Description

Images of gender and race; techniques, sound, lighting, cinematography in relation in gender. Prerequisite: 1150 or 1150W or 1160. [3] (US)

GSS1273 - Gender and the City
Course Description

Gender and urban processes; spatial and social organization of the city. Geography of gender relations. Gender, sex, race/ethnicity, class, and ability as spatial power relations. [3] (P)

GSS2222W - Another World is Possible: Feminist Futures
Course Description

Political activism, community-building, and artistic expression forging visions of the future. Structures that uphold systems of oppression. Perceptions and critical assumptions of the future as natural, predetermined, or immovable. Feminism, colonialism, racial capitalism, policing and abolition, environmental justice, and borders and mobility. [3] (HCA)

GSS2225 - Women in Popular Culture
Course Description

Gender differentiation in popular culture and mass-market products. Portrayal of women in movies, print, music, and the Internet. The sources and effects of these portrayals. Women as both consumers and the consumed. Prerequisite: 1150 or 1150W or 1160. [3] (HCA)

GSS2234 - Women in Judaism
Course Description

Judaism and feminism. Women in the Hebrew Bible, Jewish law, natural philosophy, and history. Case studies in Jewish medieval and modern contexts; problems of assimilation and cultural specificity in modern society. [3] (INT)

GSS2235 - Women in Israel
Course Description

Status and experiences of Jewish and non-Jewish women living in Israel. Religion and the law; Jewish and non-Jewish minorities; women and the military; women's health; violence against women; the Palestinian/Israeli conflict. [3] (INT)

GSS2236 - Women in Judaism II: Recent Jewish Feminism
Course Description

Twenty-first century developments in Jewish thought regarding gender, sex, and sexuality. Methodologies by which scholars grapple with regnant, "traditional" Jewish sources and norms of interpretation and practice. Race, class, and disability; role of gender in Jewish ethics, theology, ritual, ethnography, and textual interpretation. Prerequisite: GSS 2234 or JS 2710W. [3] (P)

GSS2240 - Introduction to Women's Health
Course Description

How culture influences women's health, body image, self esteem. Issues include fertility control and child bearing, medical innovations to detect disease, alternative therapies, psychological well-being, sexuality, physical and sexual abuse. Impact of politics on health options for women. [3] (P)

GSS2242 - Women Who Kill
Course Description

Examination of classical and contemporary representations of women who kill. [3] (P)

GSS2243 - Sociologies of Men and Masculinity
Course Description

Traditional and emerging perspectives on masculinity and male gender-roles. Emphasis on relationship between social forces and males' everyday experiences across the life-span. Prerequisite: 1150 or 1150W or 1160. [3] (P)

GSS2244 - The Body, Culture, and Feminism
Course Description

The body as a cultural, social, and historical construction. Western culture and narratives of "normalcy" and their impact on identity and representation. Body image and eating disorders. Cultural politics of size, weight, and shape. Disability. Cosmetic surgery. [3] (P)

GSS2249 - Women and Humor in the Age of Television
Course Description

The period 1950 to present. Television variety shows, sitcoms, and stand-up comedy as media for promoting women's humor and feminism. Comedy as a means of dealing with difficult personal and social issues. Prerequisite: 1150 or 1150W or 1160. [3] (HCA)

GSS2252 - Sex and Scandals in Literature
Course Description

From the eighteenth century to the present. Women's and men's disorderly conduct as represented in literary texts. Charlotte Rowson, Kate Chopin, Edith Wharton, Henry James, and Toni Morrison. [3] (HCA)

GSS2254 - Feminist Fictions
Course Description

From the nineteenth century to the present. Feminist ideas and ideals as represented in literary texts. Kate Chopin, Edith Wharton, Virginia Woolf, Alice Walker, and Margaret Atwood. [3] (HCA)

GSS2256 - Literary Lesbians
Course Description

From the nineteenth century to the present. How girls' and women's intimacies are monitored and policed in literature and culture. Impact of race, class, religion, and disability on expression and reception of relationships. [3] (HCA)

GSS2259 - Reading and Writing Lives
Course Description

Interdisciplinary exploration of life-stories as narratives. Strategies of self-representation and interpretation, with particular attention to women. Includes fiction, biography, autobiography, history, ethnography, and the writing of life-story narratives. Repeat credit for students who have completed 2259W. [3] (HCA)

GSS2259W - Reading and Writing Lives
Course Description

Interdisciplinary exploration of life-stories as narratives. Strategies of self-representation and interpretation, with particular attention to women. Includes fiction, biography, autobiography, history, ethnography, and the writing of life-story narratives. Repeat credit for students who have completed 2259. [3] (HCA)

GSS2262 - Gender and Ethics
Course Description

Religious worldviews connected to moral traditions. Epistemological and ethical systems and their relationship to gender and patriarchy. Social construction of gender; violence against women; feminism; and difference. [3] (P)

GSS2267 - Seminar on Gender and Violence
Course Description

In-depth study of violence against women, with a service-learning component in a community setting. Topics include domestic abuse, rape, sexual harassment, pornography, and global violence. Focus on problems and potential solutions, examining violence on a societal, institutional, and individual level, interrogating the "personal as political," and exposing power structures that shape our communities. [3] (P)

GSS2268 - Gender, Race, Justice, and the Environment
Course Description

Gender and racial aspects of environmental degradation. Risk, activism, health and illness, policy and politics. Prerequisite: 1150 or 1150W or 1160. [3] (SBS)

GSS2270 - Ecofeminism: Theory, Politics, and Action
Course Description

Interconnections among the exploitation of nature, the oppression of women, and the abuse of resources that have led to the current global ecological crisis. [3] (SBS)

GSS2301 - Gender, Murder, War: Detective Fiction 1920-1950
Course Description

Literary analysis in historical context. Sex, gender, and sexuality; war. [3] (HCA)

GSS2610 - Womanism in Global Context
Course Description

Survey of global Womanist (Black Feminist) theory and praxis. Race, class, sexuality, spirituality, and activism. Controversies over female bodies. [3] (INT)

GSS2612 - Lesbian, Gay, Bisexual, and Transgender Studies
Course Description

Introductory study of sexual identity, queer theory, relationships, politics. [3] (HCA)

GSS2613 - Compulsory Couplehood
Course Description

From the nineteenth century to the present. Legal and societal implications of marriage. Marginalization of the single person. Different gendered stereotypes of the uncoupled adult, including the bachelor and the spinster. Non-normative forms of kinship and relationships. Primarily United States with global perspectives. Scholarly and pop-cultural texts. [3] (P)

GSS2614 - Cowboys, Gangsters, and Drag Kings: Introduction to Critical Masculinity Studies
Course Description

Critical examination of representations of masculinity in patriarchal societies. Constructed nature of masculinity in relation to race, sexuality, class, national, and religious identifications. Historical, sociological, literary, cinematic, and visual art analyses. Prerequisite: 1150 or 1150W or 1160. [3] (HCA)

GSS2615 - Transgender Lives in Literature and Film
Course Description

Global study of transgender representation in film and literature. Cultural theory approach, utilizing work from the fields of transgender, queer, feminist, and disability studies. [3] (HCA)

GSS3030 - Feminist Disability Studies
Course Description

Disability through a feminist lens. Changes in the meaning of disability over time and across cultures. Intersectional focus on gender, race, ethnicity, class, age, sexuality, and nationality. Embodiment, eugenics, performance, social movements, and violence. [3] (P)

GSS3201 - Women and Gender in Transnational Context
Course Description

Gender as a social construction. Feminist critiques of knowledge, family and work, sexuality, health and medicine, and the women's movement. The future of feminism in global context. Prerequisite: 1150 or 1150W or 1160. [3] (P)

GSS3246W - Women's Rights, Women's Wrongs
Course Description

Intellectual and theoretical foundations for contemporary feminist theory and politics in the United States, based upon works by nineteenth- and twentieth-century authors. Prerequisite: 1150 or 1150W or 1160. [3] (US)

GSS3250 - Contemporary Women's Movements
Course Description

Recent feminist history. The origins and parameters of women's movements from the 1960's to the present. Repeat credit for students who have completed 3250W. Prerequisite: 1150 or 1150W or 1160. [3] (P)

GSS3250W - Contemporary Women's Movements
Course Description

Recent feminist history. The origins and parameters of women's movements from the 1960's to the present. Prerequisite: 1150 or 1150W or 1160. [3] (P)

GSS3265 - Human Rights in Activism
Course Description

Role of human rights in struggles against injustice. Identification of key problems of injustice addressed by a human rights framework. Problems with human rights as a tool for activism. Discussion in contemporary politics. Intellectual and legal traditions that have developed around human rights. No credit for students who have earned credit for PSCI 3896 section 01 offered fall 2016. Offered on a graded basis only. [3] (P)

GSS3271 - Feminist Legal Theory
Course Description

Theoretical issues about the interaction between law and gender. Application of feminist analysis and perspective to law relating to family, work, criminal law, reproductive freedom, pornography, and sexual harassment. Prerequisite: 11150 or 1150W or 1160. [3] (P)

GSS3273 - Seminar on Psychoanalysis and Feminism
Course Description

Historical and contemporary perspectives on the long and ambivalent relationship between psychoanalysis and feminism. Trauma, hysteria, narcissism, gender, and the family. Prerequisite: 1150 or 1150W or 1160. [3] (P)

GSS3281 - Globalization and Policy-Making
Course Description

Western historical conceptualizations of the state. Socio-political contexts. Prerequisite: 1150 or 1150W or 1160. [3] (INT)

GSS3301 - Reproductive Justice in Transnational Contexts
Course Description

Women of color and human rights movement for bodily autonomy and comprehensive reproductive rights in the United States. How activists around the world use different strategies to promote sexual and reproductive human rights. How opponents attack abortion rights in US and globally. Not open to students who have earned credit for GSS 3201, section 01, offered Spring 2022. [3] (P)

GSS3302 - Domestic Work and Gender Inequality Transnationally
Course Description

Gender, race, ethnicity, dis/ability, class, and nationality shape the value of domestic labor and who performs it. Migration patterns across Europe, Asia, and North and South America. Domestic workers' fight for labor rights. [3] (INT)

GSS3303 - Feminist Disability Studies
Course Description

Gender, disability, and the body. Theories of disability, performance arts, eugenics, disability rights movement, and technology. Intersectional analysis of disability alongside race, ethnicity, sexuality, and class. Memoir, history, qualitative research, and literary analysis. [3] (P)

GSS3304 - Gender, Power, and Justice
Course Description

Theoretical, historical, and cultural analysis of power structures and politics; analysis of activist and academic responses to contemporary political questions. [3]

GSS3305 - Gender and Sexuality in Times of Pandemic
Course Description

Integration of science and medicine to the social construction of race, gender and identity. Interconnections with national security, economic growth, and natural risks: sex, death and illness. Challenges to gender and sexual justice by infectious diseases. Historical and literary research; sex, sexuality and gender during times of disease. Expressions, regulations, and resistance of sex, sexuality, and gender during medical/scientific crises. [3] (HCA)

GSS3306 - Reproductive Justice: The Politics of Reproduction, Family, and Liberty
Course Description

Historical constructions of reproduction with attention to race, class, gender, sexuality, and dis/ability. Social constructs of family, motherhood, pregnancy, and parenting. Rights, health, agency, and freedom in the reproductive justice framework. [3] (P)

GSS3307 - Racial Justice
Course Description

Major contemporary racial justice debates. Theories of racial justice; inclusion of women of color, LGBT, and trans persons of color. Articulations of race, racism and pathways to racial justice. Intersectional feminist thinkers and queer theorists. [3] (P)

GSS3308 - Gender, Race, and Urban Mobilities
Course Description

Perspectives on and influences of gender and race on mobility, urban and transit planning, and policy. Methodological skills to study modes of transit. Transportation innovation across the Global North and South. [3] (P)

GSS3309 - Gender, Justice, and the Urban Environment
Course Description

Transforming urban environments. Systems of power and privilege; inequalities such as gender, race, sexuality, ethnicity, geographic location, and other dynamics that influence climate crisis response. Structures of oppression in the city via infrastructures, policies, and programs. Feminist, Black, Chicana, and decolonial methodologies [3] (P)

GSS3310 - Race, Citizenship, and Belonging in the United States
Course Description

Citizenship and race, gender, sexuality, ethnicity, religion, ability. Citizenship through lenses of feminist scholarship, critical race theory, human geography, postcolonial theory, queer theory, and critical ethnic studies. Contemporary issues in U.S. context. [3] (P)

GSS3311 - Latinx and Latin American Feminist Geographies
Course Description

Latinx geographies; colonialism and racial capitalism; the production of space; critical feminist, black, Indigenous, and queer lenses; collective struggles such as environmental justice, race and immigration, gender and labor, mobility, and territories. [3] (P)

GSS3312 - The Making and Unmaking of Latinx and Latinidades Across the Americas
Course Description

Concept of Latinidad and the category of Latino/a, Hispanic, and/or Latinx, and Chicanx; research on Latinx and Latin American identities; environmental justice, race and immigration, gender and labor, mobility, and territories (urban and rural). [3] (P)

GSS3313 - Sex, Sin and the Law in the Early Modern European Witch-Hunts
Course Description

Paradoxical attitudes towards sex, sin, and the supernatural in early modern German-speaking Europe. Religious heretics, sexual "deviants", and marginalized groups; witch hunts; gendered reasoning; legal procedures. [3] (INT)

GSS3405 - Mass Incarceration and Abolition Feminism
Course Description

Feminists as theorists and activists in prison abolition. Decentering the male as the embodiment of mass incarceration. Sexual assault to prison pipeline. Effects of carceral gendering on black women's lives. Economic, psychological, and physiological costs of the emotional labor women provide to men in prison. Nexus of interpersonal and state violence in black women's lives. Kimberle Crenshaw's concept of intersectionality as illuminating the carceral power formation. Not open to students who have completed 3892 section 01 offered spring 2021. [3] (P)

GSS3605 - Oral Histories: Voting While Black and Female in Nashville
Course Description

Centennial of the ratification of the 19th amendment. Jim Crow laws, voter suppression laws, gerrymandering. Voting experiences, opinions, and struggles of African American women in Nashville. Civic engagement and socializing conditions that create political identity. Intergenerational transmission of stories shaping the contemporary voter. [3] (P)

GSS3850 - Independent Study
Course Description

A program of reading and research for advanced students in an area of women's and gender studies arranged in consultation with an adviser. Prerequisite: 1150 or 1150W. May be repeated for a total of 6 credits if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of WGS 3850] (No AXLE credit)

GSS3880 - Internship Training
Course Description

Under faculty supervision, students gain experience combining theoretical and practical work in a project related to social change and focused on women, feminism, or gender. Legislative, community, educational, or non-profit settings. Internship plan developed between student and faculty sponsor, with approval of Women's and Gender Studies program director. A thorough report and research paper are submitted at the end of the semester. Must be taken on a Pass/Fail basis only and must be taken concurrently with 3882 and/or 3883. These hours may not be included in the minimum hours required for the women's and gender studies major. Prerequisite: 3201 and one other 2000-level (or higher) Women's and Gender Studies course, and a 2.90 grade point average. Corequisite: 3882 and/or 3883. [1-9] (No AXLE credit)

GSS3882 - Internship Readings
Course Description

Under faculty supervision, students gain experience combining theoretical and practical work in a project related to social change and focused on women, feminism, or gender. Legislative, community, educational, or non-profit settings. Internship plan developed between student and faculty sponsor, with approval of Women's and Gender Studies program director. A thorough report and research paper are submitted at the end of the semester. Prerequisite: 3201 and one other 3000-level Women's and Gender Studies course, and a 2.90 grade point average. Corequisite: 3880. [Variable credit: 1-3] (No AXLE credit)

GSS3883 - Internship Research
Course Description

Under faculty supervision, students gain experience combining theoretical and practical work in a project related to social change and focused on women, feminism, or gender. Legislative, community, educational, or non-profit settings. Internship plan developed between student and faculty sponsor, with approval of Women's and Gender Studies program director. A thorough report and research paper are submitted at the end of the semester. Prerequisite: 3201 and one other 2000-level (or higher) Women's and Gender Studies course, and a 2.90 grade point average. Corequisite: 3880. [Variable credit: 1-3] (No AXLE credit)

GSS3891 - Special Topics: Topics in Gender, Culture, and Representation
Course Description

Topics vary. Prerequisite: 1150 or 1150W or 1160. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

GSS3892 - Special Topics: Topics in Gender, Society, and Political Economy
Course Description

Topics vary. Prerequisite: 1150 or 1150W or 1160. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

GSS3893 - Selected Topics
Course Description

Topics vary. Prerequisite: 1150 or 1150W or 1160. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

GSS4950 - Capstone Colloquium
Course Description

Seminar and workshop intended for immersion enrichment culminating in individual projects. [3]

GSS4960 - Senior Seminar
Course Description

Advanced reading and research. Prerequisite: 1150 or 1150W or 1160. [3] (No AXLE credit)

GSS4970 - Sexing the Archive: Research Methods in Women's and Gender Studies
Course Description

Conducting research through a feminist and queer lens. Archival research; examining oral histories using specialized Vanderbilt resources, as well as other local and online archives. Offered on a graded basis only. Prerequisite: 1150, 1150W, or 1160. [3] (HCA)

GSS4998 - Honors Research
Course Description

Reading and research under the guidance of a faculty supervisor. Consent of both the faculty supervisor and the director of Women's and Gender Studies program required. Open only to honors candidates. May be repeated for a total of 6 credits if there is no duplication in topic. [3-6; maximum of 6 credits total for all semesters of WGS 4998] (No AXLE credit)

GSS4999 - Honors Thesis
Course Description

Open only to seniors in the Women's and Gender Studies Honors Program. May be repeated for a total of 6 credits if there is no duplication in topic. [3-6; maximum of 6 credits total for all semesters of WGS 4999] (No AXLE credit)

German

GER1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

GER1101 - Elementary German I
Course Description

Development of the four language skills of reading, listening, speaking, and writing. No credit for students who have earned credit for a more advanced German language course. [3] (No AXLE credit)

GER1102 - Elementary German II
Course Description

Continuation of 1101. No credit for students who have earned credit for a more advanced German language course. Prerequisite: 1101. [3] (INT)

GER1105 - Beginning German for Singers and Collaborative Pianists
Course Description

Basic German language skills engaging the art song (Lieder) repertoire. Structures of German through close readings, translations, and analyses of the Lieder texts within their socio-cultural context. [3] (INT)

GER1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

GER1442 - War on Screen
Course Description

Representations of World War II and the fight against Nazi Germany in Hollywood and other cinemas, contemporary video games, television, and installation art. How current modes of warfare and the global war on terror have changed the conventions of depicting war. Taught in English. [3] (HCA)

GER1482 - Borders and Crossings: German Literature and Culture from Romanticism to the Present
Course Description

Textual and visual contributions to German culture from the nineteenth and twentieth centuries in English translation. Borders - physical, ideological, intellectual, and metaphorical - and crossing these borders, as passages to more creative or liberated states of being, or as acts of transgress. Taught in English. [3] (HCA)

GER2201 - Intermediate German I
Course Description

Intensive review of German grammar as a basis for reading, conversation, and composition. Texts and discussions address issues in contemporary German society. No credit for students who have earned credit for a more advanced German language course. Prerequisite: 1102. [3] (INT)

GER2202 - Intermediate German II
Course Description

Practice in reading, listening, speaking, and writing. Short stories, one longer work (Kafka), and discussions examine aspects of modern life from a German perspective. No credit for students who have earned credit for a more advanced German language course. Prerequisite: 2201. [3] (INT)

GER2217 - Advanced Grammar
Course Description

Study of word formation and sentence structure in modern German, supplemented by contemporary readings, with discussion. Not open to students who have participated in the Regensburg exchange program. [3] (INT)

GER2400 - Berlin: History, Culture, and Art
Course Description

Maymester: visits to museums, site of the former Berlin Wall, Holocaust Memorial, and observation of German parliament in session. Daily reading and excursions. Taught in English [3] (INT)

GER2432 - Soccer: Media, Art, and Society
Course Description

Relationship of soccer to political power, globalization, mass media, gender, migration, national identity, and transnational commerce. History of the game and its tactics. Representations of soccer in various artistic media such as literature, film, poetry, and video art. Taught in English. Not open to students who have earned credit for GER 1111.09. [3] (INT)

GER2440 - History of German Thought
Course Description

From the Enlightenment to the present. German philosophy and critical theory in their social and political context. History of German intellectual movements. German thought as part of German culture. Taught in English. [3] (HCA)

GER2441 - Great German Works in English
Course Description

German literature and culture from 1750 to present. The relationship of culture and history, changing notions of individual and community, modern sensibilities expressed in various genres. Goethe, Nietzsche, Freud, Kafka, and Jelinek. Taught in English. [3] (INT)

GER2443 - A History of German Film
Course Description

A curated presentation of the history of German cinema with special emphasis on its sociocultural contexts and artistic achievements. Discussion will include pertinent theories of cinematography and cinematic narration. Taught in English. [3] (INT)

GER2444 - German Fairy Tales: From Brothers Grimm to Walt Disney
Course Description

The German fairy tale tradition and its role in American culture. Taught in English. [3] (INT)

GER2445 - Nazi Cinema: The Manipulation of Mass Culture
Course Description

Nazi manipulation of mass culture through film (propaganda, musicals, westerns). Some comparison with American film of the era, additional examination of "fascist" aesthetic legacy in American culture today. Taught in English. [3] (P)

GER2551 - Topics: Pre-18th Century Culture and Literature (ENGL)
Course Description

German-speaking cultures and their literatures from 8th to the early 18th century. Taught in English. May be repeated for credit if there is no duplication in topic. [3] (INT)

GER2552 - Topics: 18th and 19th C Culture and Literature (ENGL)
Course Description

Literature, philosophy, art, and politics, 1750-1914, of German-speaking cultures. Taught in English. May be repeated for credit if there is no duplication in topic. [3] (INT)

GER2553 - Topics: 20th and 21st Century Culture and Literature (ENGL)
Course Description

Literature, history, aesthetics, and politics in German-speaking cultures from Dada to the present. Taught in English. May be repeated for credit if there is no duplication in topic. [3] (INT)

GER2554 - Topics in Visual Culture and Media (ENGL)
Course Description

Cinema, media arts, visual culture, and media history of German-speaking cultures from pre-digital to the digital age. Taught in English. May be repeated for credit if there is no duplication in topic. [3] (HCA)

GER2555 - Topics in German Studies (ENGL)
Course Description

Seminal aspects of German literature, culture, and civilization through interdisciplinary focus. Taught in English. May be repeated for credit if there is no duplication in topic. [3] (INT)

GER2556 - Topics in Intellectual History (ENGL)
Course Description

Major trends and figures from the Enlightenment to the contemporary age. Taught in English. May be repeated for credit if there is no duplication in topic. [3] (HCA)

GER2557 - Topics in Genre (ENGL)
Course Description

Main genres of German literature and culture. Relationship between genres and the social, political, and cultural developments that lead to their formation and transformation. Taught in English. May be repeated for credit if there is no duplication in topic. [3] (HCA)

GER2563 - Twentieth-Century Germany
Course Description

The turbulent history of Germany, as it went from authoritarian state to volatile democracy, to National Socialist dictatorship, to divided country, and to reunification. Special emphasis placed on the Nazi dictatorship, its origins and legacy. [3] (INT)

GER2570 - The Holocaust
Course Description

The history of the Holocaust: its origins, development, and its legacy in the context of Germany and European history. [3] (INT)

GER2581 - Nineteenth-Century Philosophy
Course Description

A study of selected themes and writings from nineteenth-century European philosophers. [3] (INT)

GER2585 - Critical Theory
Course Description

The Frankfurt School; mass culture, ideology, and modernism in the arts; the disenchantment of reason; alienation and fascism; the prospects for experience and political critique. Readings include Adorno, Horkheimer, Marcuse, Benjamin, and Habermas. [3] (HCA)

GER2745 - Radical Art: The Avant-Garde Revolution
Course Description

Introduction to experimental art-both verbal and visual-in the 1910s-1930s. Movements studied: Cubism, Futurism, Dadaism, Suprematism, Constructivism, and Surrealism through the avant-garde's engagement with various genres and media: the manifesto, performance, sound and image poetry, painting, photomontage, artist's book, magazine, film and architecture. Taught in English. [3] (INT)

GER3201 - Advanced German: Germany Today
Course Description

German culture, politics, social issues. News media and current events. Development of advanced written and oral communication skills. Offered on a graded basis only. Prerequisite: 2202. [3] (INT)

GER3202W - Advanced German: Reading, Writing, Analysis
Course Description

Subtleties of style. Different vocabularies of textual and cultural criticism. Analysis of wide range of text genres and cultural materials. Offered on graded basis only. Prerequisite: 2202. [3] (INT)

GER3211 - German for the Professions
Course Description

The culture of the German business community; differences that hinder communication between German-speakers and non-German-speakers in the business setting; development of aural, oral, and written skills. Business practices in German-speaking countries: advertising and marketing strategies, letters, vitae, phone calls, and personal interviews. Prerequisites: 2202. [3] (INT)

GER3323 - From Language to Literature
Course Description

Continuing practice in reading, listening, speaking, and writing; emphasis on literary terminology and techniques for critical reading of German. Recommended as preparation for more advanced literary study, prose, poetry, and drama. Prerequisite: 2320. [3] (HCA)

GER3333 - Special Offering
Course Description

Topics vary. [3]

GER3343 - The Aesthetics of Violence
Course Description

The "dark" side of imagination in twentieth-century German literature including history and theory of modern art, emphasis on literary representation, mutual influences between aesthetic reflection and political action. No knowledge of German required. [3] (P)

GER3344 - German-Jewish Women Writers
Course Description

Examination of themes, forms, and sociocultural issues shaping the work of German-Jewish women writers from the Enlightenment to the present. Readings and discussions in English. [3] (HCA)

GER3345 - Love and Friendship
Course Description

Concepts of life and friendship, Greek antiquity to Romanticism, modern and postmodern times. Philosophical and literary texts, letters, and essays. Taught in English. [3] (No AXLE credit)

GER3375 - Art and Rebellion: Literary Experiment in the 1960s and 1970s
Course Description

German literature under the conditions of protest and rebellion. Experiments in poetry, prose, and theatre; new directions in art and media theory; historical influences. Taught in English. [3] (HCA)

GER3378 - Dreams in Literature
Course Description

The difference between sleeping and being awake. Literary and philosophical texts. Novels, short stories, diaries, poems, and drama written within the last two hundred years. Prerequisite: 2202. [3] (HCA)

GER3851 - Independent Readings
Course Description

Designed for majors and qualified undergraduates. Projects are carried out under the supervision of a member of the department. All projects must be approved by the department. May be repeated for a total of 6 credits over a four-semester period in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for four semesters of GER 3851 and 3852] (No AXLE credit)

GER3852 - Independent Readings
Course Description

Designed for majors and qualified undergraduates. Projects are carried out under the supervision of a member of the department. All projects must be approved by the department. May be repeated for a total of 6 credits over a four-semester period in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for four semesters of GER 3851 and 3852] (No AXLE credit)

GER3890 - Selected Topics
Course Description

May be repeated for a total of 12 credits in 3890 and 3891 combined if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3; maximum of 12 credits total for all semesters of GER 3890 and 3891] (No AXLE credit)

GER3891 - Selected Topics
Course Description

May be repeated for a total of 12 credits in 3890 and 3891 combined if there is no duplication in topic. Students may enroll in more than one section of this course per semester. [3; maximum of 12 credits total for all semesters of GER 3890 and 3891] (No AXLE credit)

GER4535 - German Romanticism
Course Description

The contributions of Schlegel, Tieck, Novalis, Eichendorff, and others to literature, philosophy, and theory. Intellectual, social, and political currents. [3] (INT)

GER4537 - Women and Modernity
Course Description

Women in German literature from the eighteenth century to the present, focusing on questions of sexuality, political emancipation, artistic identity. No knowledge of German required. [3] (INT)

GER4551 - Topics: Pre-18th Century Culture and Literature (GER)
Course Description

German-speaking cultures and their literatures from 8th to the early 18th century. May be repeated for credit if there is no duplication in topic. Prerequisite: 3201 and 3202W. [3] (INT)

GER4552 - Topics: 18th and 19th C Culture and Literature (GER)
Course Description

Literature, philosophy, art, and politics, 1750-1914, of German-speaking cultures. May be repeated for credit if there is no duplication in topic. Prerequisite: 3201 and 3202W. [3] (INT)

GER4553 - Topics: 20th and 21st Century Culture and Literature (GER)
Course Description

Literature, history, aesthetics, and politics in German-speaking cultures from Dada to the present. May be repeated for credit if there is no duplication in topic. Prerequisite: 3201 and 3202W. [3] (INT)

GER4554 - Topics in Visual Culture and Media (GER)
Course Description

Cinema, media arts, visual culture, and media history of German-speaking cultures from pre-digital to the digital age. May be repeated for credit if there is no duplication in topic. Prerequisite: 3201 and 3202W. [3] (HCA)

GER4555 - Topics in German Studies (GER)
Course Description

Seminal aspects of German literature, culture, and civilization through interdisciplinary focus. May be repeated for credit if there is no duplication in topic. Prerequisite: 3201 and 3202W. [3] (INT)

GER4556 - Topics in Intellectual History (GER)
Course Description

Major trends and figures from the Enlightenment to the contemporary age. May be repeated for credit if there is no duplication in topic. Prerequisite: 3201 and 3202W. [3] (HCA)

GER4557 - Topics in Genre (GER)
Course Description

Main genres of German literature and culture. Relationship between genres and the social, political, and cultural developments that lead to their formation and transformation. May be repeated for credit if there is no duplication in topic. Prerequisite: 3201 and 3202W. [3] (HCA)

GER4563 - The Age of Goethe-Weimar 1775 to 1805
Course Description

Rational pragmatism, aesthetic innovation in response to Kant and French Revolution. Readings drawn from Goethe's Iphigenia, Hermann und Dorothea, Schiller's Maria Stuart and Wallenstein, and Wieland's Oberon. [3] (INT)

GER4564 - Pleasures and Perils in Nineteenth-Century Theatre
Course Description

The German drama and dramatic theory from Romanticism up to Naturalism with emphasis on selected works by Kleist, B√ºchner, Grillparer, and Hebbel. [3] (INT)

GER4565 - Revolutionizing Twentieth-Century Theatre
Course Description

German drama and dramatic theory from Naturalism to the present. Emphasis on Brecht and post-Brechtian drama. [3] (INT)

GER4566 - Nineteenth-Century Prose
Course Description

A study of representative works of the main literary trends from Romanticism to Naturalism. [3] (INT)

GER4567 - The German Novel from Kafka to Grass
Course Description

A study and interpretation of the main literary trends and major figures in twentieth-century narrative. [3] (INT)

GER4569 - Writing under Censorship
Course Description

An introduction to the main literary trends and authors of the former East Germany (1949-1989). [3] (HCA)

GER4574 - Who Am I? German Autobiographies
Course Description

Canonical and non-canonical texts from the nineteenth and twentieth centuries constructing cultural, religious, and gender identities. Taught in English. [3] (HCA)

GER4576 - Tales of Travel in Modern German Culture
Course Description

German curiosity about other cultures from the late eighteenth century to the present. The role of travel in German culture. The ways in which German poets, artists, and filmmakers have embraced different social and natural settings as sites of inspiration, self-discovery, and transformation. All readings and discussion in German. Prerequisite: 2310W. [3] (INT)

Greek

GRK1101 - Beginning Greek I
Course Description

Classical Greek. Reading of simplified texts from authors of the fifth and fourth centuries BCE. No credit for students who have earned credit for a more advanced Greek language course. Graded basis only. [3] (No AXLE credit)

GRK1102 - Beginning Greek II
Course Description

Readings from classical authors. Introduction to Homeric and Hellenistic Greek. No credit for students who have earned credit for a more advanced Greek language course. Graded basis only. Prerequisite: 1101. [3] (INT)

GRK1103 - Intensive Elementary Greek
Course Description

The equivalent of Greek 1101 and 1102. The elements of the Greek language at an accelerated pace. No credit for students who have earned credit for 1101, 1102, or a more advanced Greek language course. [5] (INT)

GRK2201 - Intermediate Greek I: Classical and Koin√© Greek
Course Description

Review of Greek grammar, and reading from classical and biblical texts. Prerequisite: 1102. No credit for students who have earned credit for a more advanced Greek language course. [3] (INT)

GRK2202 - Intermediate Greek II: Homer's Iliad
Course Description

Selected reading and interpretation; history and literary characteristics of the Homeric epic; practice in reading of meter. Prerequisite: 2201. No credit for students who have earned credit for a more advanced Greek language course. [3] (INT)

GRK3010 - The Greek Orators
Course Description

Classical Athenian orators, with a focus on Lysias and Demosthenes. Historical context, rhetorical technique, and prose style. Prerequisite: 2202. [3] (HCA)

GRK3020 - The Greek Historians
Course Description

Selections from the major Greek historians, especially Herodotus and Thucydides, and study of their philosophy of history; investigation of the development of historical prose writing. Prerequisite: 2201. [3] (HCA)

GRK3040 - Readings in Plato and Aristotle
Course Description

Selected readings from the dialogues of Plato and from the ethical writings of Aristotle. Corollary readings and discussions of the pre-Socratic philosophers and the post-Aristotelian schools. Prerequisite: 2202. [3] (HCA)

GRK3100 - The Greek Tragedians
Course Description

Selections from the plays of Aeschylus, Sophocles, and Euripides. Survey of the development of tragedy. May be repeated for credit with change of subject matter. Prerequisite: 2202. [3] (HCA)

GRK3110 - Greek Lyric Poetry
Course Description

The Greek melic, elegiac, and iambic traditions, with an introduction to the Greek dialects and special emphasis on Archilochus, Tyrtaeus, Alcaeus, and Sappho. Prerequisite: 2202. [3] (HCA)

GRK3200 - Early Christian Writers
Course Description

Writings from the New Testament to critical works and letters by the Cappadocian fathers. Historical and intellectual context. Rhetoric and style. The Roman East. Prerequisite: 2201. [3] (HCA)

GRK3850 - Independent Study
Course Description

Designed for majors wanting to familiarize themselves with works and authors not covered in the regular curriculum. Prerequisite: 6 hours above 2202. May be repeated for a total of 6 credits if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of GRK 3850] (No AXLE credit)

GRK3890 - Special Topics in Greek Literature
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

H&OD: Community Leadership and Development

HODC3202 - Community Development Theory
Course Description

This is a core course in the Community Leadership and Development (CLD) track of the HOD undergraduate program. It is designed to provide a general introduction to the field of community development (CD) by examining appropriate theoretical perspectives. Ecological theory, critical theory, and theories of democracy will be studied for their application to community development issues. The theoretical perspectives examined in the course will also be linked to the diverse fields which inform community development, such as community psychology, sociology, geography, anthropology, education, and planning. Additionally, the course will provide students a more in-depth understanding of particular community development issues by exploring how alternative theoretical perspectives interpret several important community development phenomena. The course will prepare students to understand the theoretical orientations that underlie the dynamics of community development. [3]

HODC3212 - Community Development Organizations and Policies
Course Description

Introduction to the practice of community development (CD), including analysis of, and experience with, CD issues, organizations, and policies. Prepares students to work with public or community agency staff, administrators, planners, policy-makers, or community organizers and leaders, who require analysis and recommendations on particular community issues. Students may also develop experience as part of a research, intervention, or policy development team. The course also focuses on ways ordinary people can become involved in improving their own neighborhoods, communities, and city. [3]

HODC3222 - Action Research and Program Evaluation
Course Description

This is a specialty core requirement for the Community Leadership and Development (CLD) track in the Human and Organizational Development program. Course teaches policy-relevant field research methods in the context of action science. Students do an actual research project for a client organization and prepare a report with recommendations for policy and action. Students get experience in the conduct of the research as a team of a fictitious consulting organization. [3]

HODC3232 - Ethics for Human Development Professionals
Course Description

(Also listed as HOD 5100 for professional students) Normative evaluation of ethical issues in serving human need. Conflicting values within moral dilemmas will be examined from a variety of theoretical perspectives and practical criteria. Case studies of moral issues confronting the individual, the family, service organizations, and the general public will be reviewed. [3]

HODC3242 - Environmental Politics and Justice
Course Description

Throughout history, humans have shaped the environment to provide food, shelter, energy, profit, and social power. As climate change advances, our relationship to nature is more complex than ever before. On the one hand, societies have an unprecedented capacity to reconfigure the environment through processes that range from genetic manipulation to geo-engineering. On the other hand, the unequal distribution of environmental problems across races, classes, genders, and nations is intensifying and demands critical interrogation. From farmer suicides in India to protests over hydraulic fracturing ("fracking") and oil pipelines in North America, social movements are demanding more democratic control over land and natural resources. In this course, we will explore environmental justice in theory and practice. Drawing on geography, anthropology, history, and critical race studies, we will examine the following questions: What is nature? Who defines and controls it? Why do environmental inequalities arise and how are they maintained? How are groups resisting and organizing around environmental and climate justice concerns? [3]

HODC3262 - Social Entrepreneurship: Principles and Application
Course Description

This course explores the idea and practice of "Social Enterprise", an emerging field where new types of organizational models are leveraging business and markets to address important social issues and unmet needs. The complexity of social issues in the 21st century often necessitates innovative, cross-sector, interdisciplinary solutions and organizational forms. Social Enterprise has emerged as one such model with great promise. This course is designed to provide broad exposure to the activity and key issues in the social enterprise sector, as well as a more specific, hands-on learning through projects, case studies and speakers. [3]

HODC3312 - Procedures in Transition to Adult Life
Course Description

(Also listed as SPEDS 3312) Overview of history, legislation, and practice in the areas of community and employment integration for persons with disabilities. Emphasis on various strategies for promoting a successful transition from school to life. Students are required to develop instructional plans for integration within the community. Students will apply their skills in community or classroom settings. [3]

HODC3313 - Practicum: Transition to Adult Life
Course Description

Field-based application of correlated course content to instructional strategies. Assessing, planning, implementing, and evaluating instructional procedures for community and employment integration. Corequisite: HODC 3312. [1]

HODC3322 - Religious and Spiritual Organizations
Course Description

The class focuses on traditional and less studied religious and spiritual organizations and compares and contrasts their features, goals, structures, leaders, and personnel with secular organizations such as businesses. Information is also provided about how religious and/or spiritual features are being incorporated in a variety of organizational settings. [3]

HODC3332 - High Poverty Youth: Improving Outcomes
Course Description

(Also listed as SPED 3332) Youth from high poverty backgrounds may be at risk for outcomes that include academic failure, school dropout, drug abuse, unemployment, or incarceration. Students will be working with schools and community agencies in Nashville to improve outcomes for youth living in high poverty neighborhoods. There will be class meetings as well as ongoing service-learning field experiences. Fieldwork will include mentoring, tutoring, or providing job readiness training to youth in neighborhood community centers or students' high schools. [3]

HODC3342 - Introduction to Community Psychology
Course Description

Theory, research, and action in community psychology. History of mental health care; ecological theories of community, stress, coping, and social support; deviance labeling; community assessment strategies; prevention, empowerment, and community and organizational change programs; societal-level intervention policies. [3]

HODC3352 - Philanthropy and Social Problem Solving
Course Description

Topic: Philanthropy & Social Problem Solving. This course provides an opportunity to engage in the practice of philanthropy, while learning about charitable giving/fundraising, social problem-solving, and the non-profit sector. The semester will be divided into four sections: I. Problem identification; II. Approaches to change; III. Evaluating organizational effectiveness/impact and fit with theories of change; and IV. Decision making. Prerequisites: students must have taken courses in group processes (HOD 1300 or equivalent), organizations (HOD 2100 or equivalent), and systematic inquiry/research methods (HOD 2500 or equivalent), so that they are prepared to work in teams and to analyze both social problems and the organizations that aim to deal with them. [3]

HODC3650 - Community Leadership and Development Seminar
Course Description

Exploration of selected topics related to the community leadership and development track of the Human and Organizational Development Program. May be repeated for credit with change of topic. [3]

HODC3850 - Independent Study in Community Leadership and Development
Course Description

Individual programs of reading or the conduct of research studies in community leadership and development. Consent of supervising faculty member required. May be repeated. [1-3]

HODC3870 - Practicum in Community Leadership and Development
Course Description

An intensive practicum experience. Three contact hours per week required for each credit hour. [1-3]

HODC3890 - Special Topics in Community Leadership and Development
Course Description

Exploration of special issues on topics related to community leadership and development. May be repeated for credit with change of topic. [1-3]

H&OD: Education Policy

HODE3205 - Education Policy Analysis Methods
Course Description

How should the government choose among options to address the country's education problems? The main goal of this course is to introduce students to the concepts, methods, and tools useful in performing policy analysis in general, and to give students practice applying the policy analysis methods to real-world educational policy issues including school vouchers, using measures of teacher value-added, financing higher education, and the importance of resources for schooling and student achievement. Prerequisite: HOD 2700 or PSCI 1100. [3]

HODE3215 - Education and Public Policy
Course Description

The course explores contemporary social, philosophical, and political dimensions of education policy, including issues related to civic engagement, equity and school organization, and the ecology of schooling. Course readings and discussions will involve fundamental questions about the relationship between schools and society: What is the purpose of American public education? How do policy values, including equity and excellence, social justice and accountability, shape education policy? How is education policy related to social and economic outcomes and opportunities? Prerequisite: HOD 2700 or PSCI 1100. [3]

HODE3225 - Introduction to Public Finance of Education
Course Description

In this course, we first provide a foundation of knowledge for the economics of the public sector. In this part of the course, we will discuss the appropriate role of government activity in a market economy as well as other behavioral consequences of government policy from the perspective of the consumers, the policymakers, regulators, and general taxpayers. After establishing a better understanding of the economics of the public sector, we will examine economic models to explain real world government policymaking with a specific focus on education policy, including the rationale and mechanisms of funding education as well other important policy issues such as the provision of early childhood education, teacher labor markets, and accountability and school choice programs. [3]

HODE3315 - State and Local Government
Course Description

Examines the operation of state and local governments within the American federal system. Students will have met expectations for the course when they are able to express well their understanding of how American state and local governments serve the interests of their residents within a system that is highly charged politically. Prerequisite: HOD 2700 or PSCI 1100. [3]

HODE3650 - Seminars in Education Policy
Course Description

Exploration of special issues related to the education policy track of the Human and Organizational Development Program. May be repeated for credit with change of topic. [3]

HODE3850 - Independent Study in Education Policy
Course Description

Individual Programs of reading or the conduct of research studies in education policy. Consent of supervising faculty member required. May be repeated. [1-3]

HODE3870 - Practicum in Education Policy
Course Description

An intensive practicum experience. Three contact hours per week required for each credit hour. [1-3]

HODE3890 - Special Topics in Education Policy
Course Description

Exploration of selected topics related to education policy. May be repeated for credit with change of topic. [1-3]

H&OD: Health & Human Services

HODH3201 - Introduction to Human Services
Course Description

This course is a comprehensive and realistic survey of the diverse and dynamic field of human services. Students will examine: 1) significant historical developments; 2) populations served; 3) social welfare/poverty theories; 4) career opportunities; and 5) controversial and ethical issues. The course will emphasize special tasks and activities that are performed by the contemporary human service worker. [3]

HODH3211 - Introduction to Counseling
Course Description

An overview of the counseling profession: theories, techniques, settings, and specialty areas. In addition to lectures and class discussions, the course includes an experiential component designed to increase students' listening and responding skills. By the end of the course, students will have a clear understanding of what being a counselor entails. [3]

HODH3221 - Health Service Delivery to Diverse Populations
Course Description

This course focuses on the study of value systems of diverse groups, as well as variables related to gender, age, lifestyle, religion, social class, race, geography, and developmental state, and how these relate to health status and health service needs. This course provides students with a basic knowledge and understanding of diversity so that they may be more effective in serving the needs of all people. [3]

HODH3231 - Introduction to Health Services
Course Description

This course will focus on the evolution of the U.S. health care system, as well as on the evolution of health care systems in diverse environments from around the globe. The content of the course focuses on the nature and dynamics of the macro health system environments and the design and function of organizational models in those environments. Particular attention will be paid to contemporary health service organizational models, such as managed care, integrated delivery systems, and physician-hospital organizations. Topics include education and training of health care professionals, the role of health care providers, public, private, and voluntary agencies, and the interests of major stake holders. [3]

HODH3241 - Health Policy
Course Description

This course presents broad perspectives for understanding health policy within historical, political, and economic contexts. Lectures and assignments will primarily focus on health policy in the United States with a particular emphasis on the Tennessee State Legislature and Metropolitan Davidson County. Opportunities are available for application to national and international issues. Learners will be provided with a foundation from which to base their work, including an overview of the U. S. health care system and public health infrastructure, as well as a framework for conducting policy analyses. [3]

HODH3311 - Introduction to Health Promotion
Course Description

This course is designed to enhance the student's understanding of health promotion concepts that relate directly to improved lifestyle behavior change and disease risk reduction. In addition, health promotion program development, program management, and program initiatives in a variety of settings will be addressed. [3]

HODH3321 - Introduction to Sports Medicine
Course Description

Current topics in sports medicine, with an emphasis on prevention, management, and rehabilitation, and administrative aspects of sports medicine. [3] (Not currently offered)

HODH3331 - Managing Health Care Organizations
Course Description

This is an applied course which combines theoretical knowledge with professional learning experiences, such as case studies, guest lectures, films, management development exercises, and group projects. This course provides a conceptual review of basic managerial functions such as 1) planning, 2) organizing, 3) controlling, 4) staffing, and 5) influencing. The course addresses related managerial activities such as communication, decision making, and legal and legislative issues. Prerequisite: HODH 3201 or HODH 3231. [3]

HODH3650 - Health and Human Services Seminar
Course Description

Exploration of special issues related to the health and human services track of the Human and Organizational Development Program. May be repeated for credit with change of topic. [3]

HODH3850 - Independent Study in Health and Human Services
Course Description

Individual programs of reading or the conduct of research studies in Health and Human Services. Consent of supervising faculty member required. May be repeated. [1-3]

HODH3870 - Practicum in Health and Human Services
Course Description

An intensive practicum experience. Three contact hours per week required for each credit hour. [1-3]

HODH3890 - Special Topics in Health and Human Services
Course Description

Exploration of selected topics related to health and human services. May be repeated for credit with change of topic. [1-3]

H&OD: International Leadership and Policy

HODI3200 - Global Dimensions of Community Development
Course Description

The globalization process induces new forms of human organization and transforms existing organizations at the community, national, and international levels. This course provides an understanding of the nature, functioning, and development of organizations affected by globalization in societies different from our own and as they relate to multilateral or global institutions that span different social and cultural settings. To do this, the course explores organizations from a comparative perspective, using the analytical framework of human ecology, in terms of differential access to economic and other productive assets, education and information, security and the rule of law, social capital and cultural identity. [3]

HODI3210 - Leadership and Change in International Organizations
Course Description

This course uses an interdisciplinary case study approach to investigate organizational challenges associated with today's international environment. Students examine the impact of culture, politics, and policy, and other international phenomena such as exchange rates, trade, and capital markets on organizational leadership, structure, and performance. Students also explore various dilemmas that confront decision-makers in international organizations as they attempt to reconcile institutional objectives, individual preferences, and varying cultural norms.[3]

HODI3220 - International Organizations and Economic Development
Course Description

The number of international organizations has proliferated since World War II, and their functions have diversified. Some are altruistic. Others are regulatory. Some serve as forums for debate, others as instruments for military action or enforcement of international agreements in such diverse fields as health, labor, agriculture, human rights, environment, culture, and trade. This course addresses how these organizations are financed, how they are governed, and how they create and manage political controversy. It covers their legal mandates and structure, seeks to develop awareness of issues of human capital and the World Bank, addresses the controversies and debates over globalization and the role of international organizations in the international regulatory environment, and assesses the future of such organizations in an increasingly interdependent world. [3]

HODI3230 - Education and Economic Development
Course Description

This course reviews the history and application of human capital theory. It provides students with examples of applications in economic development policy. It gives students practice in applying common statistical models. It exposes students to current debates in education policy in the World Bank and other international organizations which result from those models. [3]

HODI3240 - Effectiveness in International For-Profit Organizations
Course Description

Intercultural understandings and skills are key in today's job market, due to fast-growing opportunities and challenges in international, multinational and global businesses. In this course students will, through a variety of methodologies, explore the current trends of exploding world trade, emerging nations, competition for talent and resources, and the impact of technology and changing demographics. Additionally, students will develop skills and understandings in working with cultures, managing cross-cultural teams, and the ins and outs of working abroad. [3]

HODI3250 - Building Knowledge Economics in Asia
Course Description

This course focuses on the challenges and opportunities faced by the Asia-Pacific Region in making the transition to knowledge-based economies. Topics cover global, regional, and country-specific policies and initiatives aimed at building the four pillars of the Knowledge Economy (as defined by the World Bank): economic incentive and institutional regime, education, innovation, and information and communications technologies. This course is intended for advanced undergraduate students interested in gaining a deeper understanding of the transformational changes in the vast and diverse region. [3]

HODI3260 - Education in the Asia-Pacific Region: Development, Reform, and Innovation
Course Description

This course focuses on an in-depth analysis of current developments in education and schooling in the vast and diverse Asia-Pacific Region. Students will examine perspectives from educational researchers, policy makers and practitioners on the major issues, concerns and prospects regarding educational developments in the region. [3]

HODI3270 - Global Sustainable Development
Course Description

This interdisciplinary course will help students to develop a capacity to analyze society-environment relations across spacial scales (from local to the global) using approaches from multiple academic disciplines and professional fields. The course's dual focus on analytical approaches and environmental objects (rather than a typical emphasis on problems) underscores the fact that today's concerned citizens and professionals must be able to analyze complex society-environmental relations from multiple perspectives and at multiple scales. Sustainability demands insights and methods from education, the social sciences, business and organizational studies, the natural sciences, and more. [3]

HODI3650 - International Leadership and Development Seminar
Course Description

Exploration of special issues related to the international leadership and development track of the Human and Organizational Development Program. May be repeated for credit with change of topic. [3]

HODI3850 - Independent Study in International Leadership and Development
Course Description

Individual programs of reading or the conduct of research in international leadership and development. Consent of supervising faculty member required. May be repeated. [1-3]

HODI3870 - Practicum in International Leadership and Development
Course Description

An intensive practicum experience. Three contact hours per week required for each credit hour. [1-3]

HODI3875 - Field School in Intercultural Education
Course Description

This course takes place in various sites over a 10-week period in the summer session. It provides training in community field research and analysis techniques directed to human, social, and civic development issues. [3]

HODI3890 - Special Topics in International Leadership and Development
Course Description

Exploration of special topics related to international leadership and development. May be repeated for credit with change of topic. [1-3]

H&OD: Leadership & Organizational Effectiveness

HODL3204 - Leadership Theory and Practice
Course Description

A systematic study of the formal theories and models of the leadership process and the research supporting and challenging them. Students will complete a wide range of leadership self-assessments; design a leadership self-development plan; and participate in individual and group problem solving, decision making, conflict resolution, and performance appraisal simulations and case studies focusing on personal and organizational effectiveness. Prerequisite: HOD 2100. [3]

HODL3224 - Analyzing Organizational Effectiveness
Course Description

Effective leaders are able to analyze internal results and external trends in order to make effective decisions. Students will gain first-hand knowledge of the financial and strategic issues critical to effective decision-making through a mix of lectures, case studies and one problem-based learning module. The primary focus will be on the relevant critical thinking skills such as: identifying relevant decision criteria, interpreting trends in the underlying data (both financial and operational), and communicating that analysis to executives in a manner that can be readily digested. [3]

HODL3234 - Advanced Organizational Theory
Course Description

A comprehensive study of current theories and applied research in organizational effectiveness. Emphasis is on the principles and practices of organizational restructuring, organizational development and planned changes, systems and processes, self-managed teams, and Total Quality. Experiential learning through simulations and field work will reinforce systematic inquiry, strategic planning, and applied organizational assessment skills. Prerequisite: HOD 2100. [3]

HODL3244 - Introduction to Human Resource Development
Course Description

An introduction to the theory and practice of human resource development (design and implementation of training in corporate or human service organizations). Special emphasis on roles played by HRD professionals and concepts and skills needed for entry into the profession. [3]

HODL3254 - Human Resource Management
Course Description

A comprehensive survey of human resource management theory, procedures, and practices, with emphasis on the organizational leader's role and responsibilities for recruiting and selection, placement and career development, employee relations, labor relations, performance appraisal, compensation and benefits, workplace ethics, equal employment opportunity, safety and health, legislation and workplace regulations, development of personnel policies and practices, and the techniques of strategic human resource planning. [3]

HODL3264 - Evidence-based Practice in Organizations
Course Description

Accessing and using published research in solving organizational and social problems is a cornerstone of movements in management, education, medicine and a range of other fields. Using evidence from academic research has even become part of the definition of ethical practice in many of these fields. As a result, identifying and appraising research studies that might be used to solve individual, team and organizational problems has become a critical skill for practitioners. From this research, practitioners must be prepared to create actionable interventions and to persuade others to adopt them. Prerequisites: HOD 2100 (concurrent enrollment allowed) [3]

HODL3274 - Managing Organizational Change
Course Description

This course focuses on organizational development philosophy and practices of planned change, and the theory and techniques of organizational consulting. Students will participate in simulations and actual organizational development interventions. Prerequisite: HODL 3204 or HODL 3234. [3]

HODL3284 - Gender and Leadership
Course Description

What does the research on leadership tell us? Broad based leadership research has examined leadership by gender (Eagly & Carli, 2007; Gage, Mumma, & Fritz, 2004), feminine and masculine characteristics of leadership (Eagly & Carli, 2007; Pittinsky, Bacon, & Welle, 2007; Valian, 1998), and perceptions of women's ability to lead (Rhode & Kellerman, 2007). Yet much leadership research has typically addressed leadership development from a traditional view: white, male, positional leadership. How can we bring about a shift in the view of leaders and leadership? What role does and can gender identity play in effective approaches to leadership? In what ways can we learn to problematize situations and develop solutions through more contemporary leadership approaches? Utilizing research, popular readings, and voices from leaders from various gender identities, this course will examine the theoretical perspectives of leadership and gender. Exploration of one's view of self-as-leader including gender identity, will also be incorporated. Students will come to understand what we know about gender and leadership through the examination and critique of the scholarship, and learn how to use their own voice to be an advocate for self and others. [3]

HODL3314 - Strategic Planning and Project Management
Course Description

This advanced seminar and workshop-based course focuses on the key organizational processes of strategic planning and project management. Building on prior instruction in leadership and organizational theory and practices, students will complete a critical analysis of strategic leadership theory and models of organizational planning. Activities include evaluation of internal and external factors impacting on planning; participation in strategic planning and project management simulations; evaluation of the performance of selected strategic leaders as planners; and practice with key planning tools and technologies. [3]

HODL3324 - Executive Leadership
Course Description

This course introduces students to concepts of leadership involved in various social, political, and corporate domains. Course content relies on biographies of renowned leaders to illustrate principles of executive leadership. [3]

HODL3334 - Challenges of Leadership
Course Description

This course is designed as an extension of the study of leadership theory and practices begun in HODL 3204. Provides opportunities to investigate leadership concepts introduced in HODL 3204 in more depth. Prerequisite: HODL 3204. [3]

HODL3650 - Leadership and Organizational Effectiveness Seminar
Course Description

Exploration of selected topics related to the leadership and organizational effectiveness track of the Human and Organizational Development Program. May be repeated for credit with change of topic. [3]

HODL3850 - Independent Study in Leadership and Organizational Effectiveness
Course Description

Individual Programs of readings or the conduct of research studies in leadership and organizational effectiveness. Consent of supervising faculty member required. May be repeated. [1-3]

HODL3870 - Practicum in Leadership and Organizational Effectiveness
Course Description

An intensive practicum experience. Three contact hours per week required for each credit hour. [1-3]

HODL3890 - Special Topics in Leadership and Organizational Effectiveness
Course Description

Exploration of selected topics related to the leadership and organizational effectiveness track of the Human and Organizational Development Program. May be repeated for credit with change of topic. [3]

Haitian Creole Language

CREO1101 - Elementary Creole I (Duke)
Course Description

Haitian Creole or Krey√≤l language. Vocabulary and idioms. Haitian culture. Understanding, speaking, reading, and writing in contexts of health care, Haitian women's rights, and unpaid child servants (restav√®k). Offered on a graded basis only. [3] (No AXLE credit)

CREO1102 - Elementary Creole II (Duke)
Course Description

Essential elements of Creole language and aspects of Haitian culture. Speaking, listening, reading, and writing. Exposure to Haitian culture through films, storytelling, games, music, and proverbs. Prerequisite: 1101 or a comparable level of previous Creole language experience, such as familial background in Creole. Offered on a graded basis only. [3] (INT)

CREO2201 - Intermediate Creole I (Duke)
Course Description

Understanding, speaking, reading, and writing in cultural context; issues of rural life in Haiti, religion, Frenchified Creole vs popular Creole. Texts, poems, novel excerpts. Focus on contemporary events and debates in Haitian culture. Offered on a graded basis only. Prerequisite: 1102. [3] (INT)

CREO2202 - Intermediate Creole II (Duke)
Course Description

Second semester of Intermediate Creole. Offered on a graded basis only. Prerequisite: 2201 or equivalent. [3] (INT)

CREO3301 - Advanced Haitian-Creole I (Duke)
Course Description

Listening, speaking, reading, and writing skills. Themes related to Ayiti such as literature(s), language(s), education, history, and different types of Haitian music. Pioneers of Haitian Krey√≤l literature and works of Haitian scholars/authors published in the past ten years. Music groups that left their mark on Haitian music. [3]

CREO3302 - Advanced Haitian-Creole II (Duke)
Course Description

TBD

Hebrew

HEBR1101 - Elementary Hebrew
Course Description

Introduction to alphabet, the basics of grammar, and elementary conversation. Classes meet three times per week with an additional two hours a week required in the language laboratory. No credit for students who have earned credit for a more advanced Hebrew language course. [4] (No AXLE credit)

HEBR1102 - Elementary Hebrew
Course Description

Continuation of 1101. Greater stress upon conversation and grammar. Classes meet three times a week with an additional two hours a week required in the language laboratory. No credit for students who have earned credit for a more advanced Hebrew language course. Prerequisite: 1101. [4] (INT)

HEBR2201 - Intermediate Hebrew
Course Description

Introduction to modern Hebrew reading, conversation, advanced grammar, and conversation. Classes meet three times a week with an additional three hours a week spent in independent work in the language laboratory. No credit for students who have earned credit for a more advanced Hebrew language course. Prerequisite: 1102. [3] (INT)

HEBR2202 - Intermediate Hebrew
Course Description

Continuation of 2201. Greater emphasis on reading and writing. Classes meet three times a week with an additional three hours a week spent in independent work in the language laboratory. No credit for students who have earned credit for a more advanced Hebrew language course. Prerequisite: 2201. [3] (INT)

HEBR2301 - Advanced Hebrew Grammar
Course Description

Emphasis on syntax and grammar supplemented by listening, speaking, and reading. No credit for students who have earned credit for a more advanced Hebrew language course. Prerequisite: 2202. [3] (INT)

HEBR2302W - Advanced Hebrew Composition
Course Description

Development of writing skills through the study of short stories, poems, articles, television, and web materials. Prerequisite: 2301. [3] (INT)

HEBR3851 - Independent Study in Modern Hebrew
Course Description

May be repeated for a total of 6 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total in HEBR 3851 and 3852] (No AXLE credit)

HEBR3852 - Independent Study in Modern Hebrew
Course Description

May be repeated for a total of 6 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total in HEBR 3851 and 3852] (No AXLE credit)

Hindi Urdu Language Instruction

HNUR1101 - Elementary Hindi-Urdu I
Course Description

Speaking-listening skills and basic grammar. Introduction to reading and writing in Devanagari (Hindi) and Nastaliq (Urdu) scripts and to South Asian cultural materials. No credit for students who have earned credit for a more advanced Hindi-Urdu language course. [4] (No AXLE credit)

HNUR1102 - Elementary Hindi-Urdu II
Course Description

Reading, writing, speaking, and listening. Cultural contexts of speaking Hindi-Urdu. No credit for students who have earned credit for a more advanced Hindi-Urdu language course. Prerequisite: 1101. [5] (INT)

HNUR2201 - Intermediate Hindi-Urdu I
Course Description

Conversational skills, writing, vocabulary, and grammar. Reading texts in Devanagari (Hindi) and Nastaliq (Urdu) scripts. Discussion of cultural materials in Hindi-Urdu. No credit for students who have earned credit for a more advanced Hindi-Urdu language course. Prerequisite: 1102. [5] (INT)

HNUR2202 - Intermediate Hindi-Urdu II
Course Description

Reading, writing, speaking, and listening with authentic materials. Common and specialized vocabulary. Cultural contexts of spoken Hindi-Urdu. No credit for students who have earned credit for a more advanced Hindi-Urdu language course. Prerequisite: 2201. [4] (INT)

HNUR3301 - Advanced Hindi-Urdu I
Course Description

Reading, writing, speaking, and listening with authentic materials. Advanced vocabulary, literary, and cultural studies. No credit for students who have earned credit for a more advanced Hindi-Urdu language course. Prerequisite: 2202. [3] (INT)

HNUR3302 - Advanced Hindi-Urdu II
Course Description

Reading, writing, speaking, and listening with authentic materials. Advanced vocabulary, literary, and cultural studies. No credit for students who have earned credit for a more advanced Hindi-Urdu language course. Prerequisite: 3301. [3] (INT)

HNUR3321 - Readings in Hindi-Urdu Literature
Course Description

Advanced readings, topics vary by semester. May be repeated for credit. Prerequisite: HNUR 3301 or instructor permission. [3] (HCA)

History

HIST1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

HIST1038 - Language(s) in the World
Course Description

Origins and varieties of language communication, its classification and study. Languages of empires. Bible as historical vehicle for language development and writing. Intersections of language and religion. Dialect and translation; communication alternatives including non-spoken, artificial, and non-human languages. Rap. Taboos. Language death. [3] (INT)

HIST1039 - Global History 1453 to Present
Course Description

Global interaction and the international order. Methodological approaches. Patterns in global flows of people, capital, goods, and ideas. History of human contact, productive capabilities, wealth, and inequalities. Regimes of human differentiation and power, war and peace. [3] (INT)

HIST1040W - Revolutions in the Modern World
Course Description

Age of Democratic Revolution to the Arab Spring. U.S., French, Haitian, Russian, Iranian Revolutions. Overthrow of traditional regimes; invention of revolutionary states. Democracy, rights, Marxism. Nature of legal, social, and economic change. Radicalization and violence. Global influence and legacy. Offered on a graded basis only. [3] (INT)

HIST1050 - East Asia since 1800
Course Description

Traditional orders in China, Japan, Korea, and Vietnam. Encroachment of European empires. Nineteenth- and twentieth-century social and political revolutions. Japanese imperialism and the invention of pan-Asianism. WWII in the Pacific; the rise and persistence of Communism. East Asia as a new center of the global economy in the twenty-first century. [3] (INT)

HIST1060 - Premodern China
Course Description

The development of Chinese civilization from ancient times to the seventeenth century. The birth and development of the Chinese identity; Confucianism, Taoism and Buddhism; the moral, military, and bureaucratic foundations of the imperial institution; the Silk Road; eunuchs and concubines; the commercial revolution. [3] (INT)

HIST1061W - Law and Society in Imperial China, 1600-1900
Course Description

Evolution of governance and law in imperial China; early modern legal culture. Law concerning crimes, property, commerce, gender and sexuality. Qing-dynasty law codes and judicial records. [3] (INT)

HIST1070 - China from Empire to the People's Republic
Course Description

From the seventeenth century to the present. The establishment and expansion of the Qing empire and its clashes with European empires. Twentieth-century revolutions and war with Japan. Mao and the making of the Communist state; post-Mao economic and social reforms. Tibet and ethnic minority issues. [3] (INT)

HIST1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

HIST1160 - Modern South Asia
Course Description

Early modern South Asia to British imperialism and the independence of India and Pakistan. Colonial society, political movements, caste, gender, and religious "reform." Mass nationalism and Gandhi, religious conflict, and the partition of India and Pakistan. Debates on history and memory. [3] (INT)

HIST1161 - India Before Europe: 3000 B.C.E.-1750 C.E
Course Description

South Asia from Indus Valley civilization to British imperialism. Era of Vedas, epics, Mauryas, and Guptas. Rise of Buddhism and Jainism. Overseas expansion and trade with Southeast Asia. Early encounters with Islam, followed by Turkic and Mughal rule over north India. Portuguese, Dutch, and British trading ventures in India. End of Mughal rule and beginning of British empire. [3] (INT)

HIST1162 - The East India Company, 1600-1858: The Company That Ruled The World
Course Description

Formation of an English joint-stock company to trade in Asia. Establishment of trading posts (factories). Conflicts with Mughals, Portuguese, Dutch, and pirates. Shift from trade to politics; Company government in South Asia. Resource extraction and colonialism. Rebellion of 1857 and abolition of the Company. Forerunner of modern corporations. Offered on a graded basis only. [3] (INT)

HIST1190 - A History of Islam
Course Description

Origins to the present, with emphasis on the modern era. Early and medieval Islam, modernism and fundamentalism. Arabia and the Wahhabis, Iran and Shi'ism, South Asian syncretism, Muslim minorities in Western Europe and the United States. Recent Islamic views on human rights, science, economics, and other religions. [3] (INT)

HIST1200 - The Arab Spring
Course Description

Roots of the movement and the course of events. The role played by the West and by print and other media. Ideologies throughout the Islamic world. Prospects for the future. [3] (INT)

HIST1269 - Introduction to African Studies
Course Description

Interdisciplinary exploration of the African experience. Human origins, geography, race and ethnicity, and historical and contemporary issues. Shifting theoretical constructions of Africa alongside the social, cultural, political, and economic forces at play across the continent. [3] (INT)

HIST1270 - Early African History
Course Description

Early history of African civilization and cultural practices; rise of major empires; ecology and religion; Indian and Atlantic Ocean trade economies; the slave trade. Not open to students who have completed 1270W. [3] (INT)

HIST1270W - Early African History
Course Description

Early history of African civilization and cultural practices; rise of major empires; ecology and religion; Indian and Atlantic Ocean trade economies; the slave trade. Serves as repeat credit for students who have completed HIST 1270. [3] (INT)

HIST1271W - War, Refugees, and Reconciliatory Justice in Africa
Course Description

Historical and contemporary conflicts. Border wars, civil wars, genocides, terrorism, political violence, and warlordism in Africa. Displacement and refugees; truth and reconciliation commissions; post-conflict justice; peace processes, post-conflict reconstruction. [3] (INT)

HIST1280 - Africa since 1800: The Revolutionary Years
Course Description

Political, economic, and social patterns in SubSaharan Africa from 1800 to the present. The transition from traditional states and societies, through the colonial interlude and the quest for independence to the modern national setting with its problems of development. Emphasis on the peoples of Nigeria and South Africa. [3] (INT)

HIST1281W - The Making of African Cities: Histories of Globalization and Migration
Course Description

Cultural, political, and environmental history of towns from antiquity to the present. Emergence of early city-states. Relationship between urban formations and natural environments. Trade, migration, and religious networks. Colonial rule and urban planning. Nationalist movements. Expressive cultures. Challenges of urbanization. Development, infrastructure, and technology. [3] (INT)

HIST1320 - The Senses of Happiness: A History
Course Description

Aspects of the experience of happiness through a history of the senses and emotions. Laughter, ecstasy, tasting and smelling, seeing and hearing, prosperity, great outdoors, home and hearth, intimacy, creature companions, and health. [3] (P)

HIST1345 - The World of Rome
Course Description

Origin of the city to the collapse of the Western empire, particularly from Punic Wars to the Severan emperors. Political, military, social, and religious history. Ancient authors and material culture. Not open to students who have earned credit for CLAS 2150 and 2160 without permission. Total credit for this course, CLAS 2150, and 2160 will not exceed 6 hours. Credit hours reduced from third course taken (or from test or transfer credit) as appropriate. [3] (INT)

HIST1350 - Western Civilization to 1700
Course Description

Judeo-Christian and Greco-Roman foundations to the beginning of the eighteenth century. [3] (INT)

HIST1352 - Law, Trade, and War in European Empires, 1400-1900
Course Description

Major economic and legal transformations of the early modern world. Strategies of Portuguese, Spanish, Dutch, English, and French overseas empires in Asia, Africa, and the Americas. Role of law, in particular the legal framework for European-indigenous relations and the rise of international law. Imperial economies, especially shifting patterns of trade and labor. Violence against indigenous people and rivalries among imperial powers. [3] (INT)

HIST1353 - Atlantic History in the Digital Age
Course Description

Atlantic World, fifteenth through nineteenth centuries. Emergence and expansion of the slave trade; encounters between peoples of African, American, and European descent; competing legal and economic imperial modes. Traditional readings-based coursework combined with introduction to related digital history projects and methods. [3] (INT)

HIST1355W - Innovation and Renovation in Renaissance Europe
Course Description

Renaissance as historical period. Reason versus faith. Materiality. Cultural interactions across political and economic borders. Works by Dante, Petrarch, and Machiavelli. [3] (HCA)

HIST1360 - Modern Europe, 1650 to 1990: States, Economies, and Knowledge
Course Description

Modern European history from the Thirty Years War to the end of the Cold War. History of states, economies, and the production of knowledge. [3] (INT)

HIST1368 - Rio de Janeiro: Culture and Citizenship in the Marvelous City
Course Description

From the nineteenth century to the present. Race, class, and gender. Film and literary sources. Modernity and marginalization. [3] (INT)

HIST1370 - Colonial Latin America
Course Description

Survey of Latin American history from pre-Columbian times to the early nineteenth century. Iberian, Amerindian and African background; the conquest; construction of colonial society and institutions; wars for independence. [3] (INT)

HIST1375 - Latinx Histories of the US South
Course Description

Latin American origin communities in the South from the early 1900s to the present. Migration experiences, evolution of US immigration policy, urban and rural economies, work and labor organizing, race and regional politics, and civil rights mobilizations. Mexican farm workers in Louisiana and Arkansas, women cigar laborers in Tampa, and rural Latinx communities in today's many meatpacking towns. Demographic patterns, undocumented life-ways, and collective placemaking endeavors of the last 30 years. [3] (US)

HIST1378 - Social Movements in Latin America, 1780-1912
Course Description

Citizenship and state formation. Race, gender, and nation. Tupac Amaru insurgency, Brazilian abolitionism, and the first Black political party in Cuba. [3] (P)

HIST1379W - The Inquisition in the New World: Law, Deviance, and Heresy in Colonial Mexico
Course Description

Inquisition as a window on colonial law and culture in Mexico. Church, state, and empire. Religious change. Gender, race and ethnicity, and religious practices. Understandings of orthodoxy, heresy, deviance, and cultural practices. [3] (P)

HIST1380 - Modern Latin America
Course Description

A survey of Latin American history from the early nineteenth century to the present. Wars for independence; rise of new nations and export-oriented economies; case studies in revolution, nationalism, and reform in the twentieth century; U.S.-Latin American relations. [3] (INT)

HIST1383 - Slave Resistance in the Americas
Course Description

Resistance across North and South America. Slave flight, marronage, and full-blown rebellion. Free black towns in Florida, Mexico, Panama, and Colombia created by former slaves. Problems of evidence and voice through primary sources of free and enslaved Africans and their descendants. Sources by historians and archaeologists. Art and material culture of rebels. Offered on a graded basis only. [3] (INT)

HIST1384 - Law, Gender, and Slave Emancipation in Latin America
Course Description

Afro-Latin America in the long 19th century. How slavery endured and shaped modern statecraft in Latin America. Gendered and racialized labor and social structures after slavery. Gradual-abolition and free-womb laws. [3] (INT)

HIST1385W - Disease and Disorder in the Atlantic World
Course Description

Spanish Atlantic from Columbus through the Haitian Revolution. Smallpox, slavery, and rebellion. [3] (INT)

HIST1390 - America to 1776: Discovery to Revolution
Course Description

North American colonies from the Iberian Atlantic dominion through the zenith of the British Empire. The impact of the European quest for empire on Native American and West African societies. The emergence of colonial North America within the context of European imperial rivalries and Native American political and economic networks. [3] (US)

HIST1395 - The Underground Railroad
Course Description

Runaway slaves and their assistance from free blacks, whites, and other slaves. Impact on the course of slavery. Mechanisms of slave holders to capture and return the enslaved. Offered on a graded basis only. [3] (US)

HIST1400 - U.S. 1776-1877: Revolution to Civil War and Reconstruction
Course Description

Independence and establishment of new political institutions. Westward expansion, economic expansion, formation of a distinctive American culture. Development of mass party politics, evangelical Protestantism, and reform movements. Sectional conflict over slavery, Civil War; Reconstruction, and the dawn of the Gilded Age. [3] (US)

HIST1405 - A History of Nashville during the Civil War
Course Description

Causes of the war; international, political, and economic perspectives. Military history. Strategy and logistics; railroads and rivers. Technological and medical developments. Battle of Franklin. Battle of Nashville. Tennessee and the Western theatre. [3] (US)

HIST1410 - U.S. 1877-1945: Reconstruction through World War II
Course Description

Economic, political, and social history during the era of industrialization, mass immigration, the rise of mass culture, the Great Depression, and the two world wars. [3] (US)

HIST1420 - U.S. Post-1945: Cold War to the Present
Course Description

Political, international, social, and cultural currents that have shaped contemporary America. [3] (US)

HIST1422W - FDR, the New Deal, & War
Course Description

1930s and 1940s United States' domestic and foreign policy during the presidency of Franklin D. Roosevelt. U. S. global ascendancy and rise of the new welfare state. [3] (US)

HIST1425W - Body, Mind, and Soul: Elvis, Dylan, Springsteen and Postwar America
Course Description

Rock and roll's transformation of American culture. Focus on three pivotal artists and their role in the history of each of their breakout decades: the 1950s, 1960s, and 1970s. Readings and listenings on the African American roots of rock, the gendered dimensions of the genre, the role of dissent and accommodation in popular music. Issues of youth, alienation, religion, and individuality. [3] (US)

HIST1427 - United States in the 1970s
Course Description

The 1970s as pivotal to cultural, economic, and social change. Vietnam, Watergate, and economics of stagflation. Fundamental changes in race and gender relations. Transformations through and in music, film, and television. U.S. national politics, concluding with an analysis of the causes of the "Reagan Revolution." [3] (US)

HIST1427W - The United States in the Seventies
Course Description

The 1970s as pivotal to cultural, economic, and social change. Vietnam, Watergate, and economics of stagflation. Fundamental changes in race and gender relations. Transformations through and in music, film, and television. U.S. national politics, concluding with an analysis of the causes of the "Reagan Revolution." [3] (US)

HIST1430W - North American Indians and the Environment
Course Description

North American Indians' interaction with their environments over time and space. Challenges posed by colonial practices and government policies. American Indian communities' projects in U.S. and Canada to sustain spiritual and material connection to natural world. [3] (US)

HIST1431 - The United States in the 1990s
Course Description

The 1990s as a key decade of economic, political, and cultural change in the United States. End of the Cold War and Reagan era. Rise of post-industrial economy, polarization, and "culture wars." Transformations in media technologies, music, and film. [3] (US)

HIST1438 - African American History to 1865
Course Description

Political, cultural, socioeconomic, and intellectual history of African Americans from their arrival in colonial America through the end of the U.S. Civil War. History of and resistance to slavery. [3] (US)

HIST1440 - African American History since 1877
Course Description

The political, socioeconomic, and intellectual history of African American people from the end of Reconstruction to the present. Special emphasis on African American cultural and institutional history and the twentieth-century protest movements. [3] (US)

HIST1469 - Fútbol-Soccer: Latinx, Gender, and Belonging
Course Description

Recurring topics and debates in sports history; differences in academic and popular history of sport. Changing agendas of sports history, including emphases on transnational and imperial processes. Perspectives on questions of power and social hierarchies as these relate to popular culture and belonging. [3] (US)

HIST1470 - History of Exploration
Course Description

Antiquity to the present. Voyages of discovery, including land expeditions and exploration of extreme depths, high altitudes, and outer space. Technologies of travel and measurement. Voyaging as exploration of the self. Cultural shifts as consequences of encounters with new places and peoples. [3] (INT)

HIST1480 - The Darwinian Revolution
Course Description

Intellectual structure and social context of evolutionary ideas from 1700 to the present. Pre-Darwinian evolutionary theories. Darwin's life and work. Racial theories and eugenics. Comparative reception of Darwinism in the United States and Europe. Conflict between science and religion. [3] (P)

HIST1500 - History of Modern Sciences and Society
Course Description

The end of the Scientific Revolution to the present. Sciences arising from the fields of Natural Philosophy (physics, astronomy, mathematics, and chemistry) and Natural History (geology and the life sciences). The clockwork universe, atomism and the Chemical Revolution; evolutionary theory (physical, geological, and biological); thermodynamics; and quantum theory. Colonial empires, industry, professional specialization, cultural modernism, and nuclear fear. [3] (P)

HIST1510 - The Scientific Revolution
Course Description

The production and dissemination of knowledge of the natural world during the period of the Scientific Revolution, covering roughly from 1450 to 1700. Cosmology and astrology, navigation, alchemy, religion and philosophy, and medicine. [3] (P)

HIST1510L - Scientific Revolution Digital History Lab
Course Description

Optional lab accompanying HIST 1510. Digital history tools and building digital projects. Prerequisite or corequisite: 1510. [1] (No AXLE credit)

HIST1515 - Virtual Reality and the Humanities
Course Description

Workshop in humanistic dimensions of interactive immersive environments including video games and simulations. History and theory of the medium as well as tools and practices in their creation. [3] (HCA)

HIST1520 - Science and the Sea
Course Description

Histories of science and environment. Effect of science on our conception of the ocean; effect of working at sea on our practice of science. Navigators' travel journals, oceanographers' reports, and recent writings by historians of ocean science. [3] (P)

HIST1525 - Global History of Pests
Course Description

Beginnings of sedentary agriculture to present with emphasis on modern period. Cultural, social, political, and economic aspects. Catastrophes and religion. Insects and empire. Public health and changing views of disease vectors. Language of pests and race. Impact of pesticides. Food production. Environmental justice. [3] (SBS)

HIST1530 - Climate History
Course Description

Early modern period to the present. Cultural, social, political, and economic aspects. The Little Ice Age, imperial expansion, and resistance. Scientific knowledge of environmental change. Capitalism, famine, and natural disasters. Climate change and the future. Environmental justice. [3] (INT)

HIST1580 - Crime and Punishment in Early Modern Europe 1400-1800
Course Description

Changing definitions of crime, the classification of criminals, and the nature of punishment. "Real" crimes such as vagrancy, theft, and murder; imaginary crimes such as Jewish ritual murder and witchcraft. Connections with long-term social, legal, and cultural transformations. [3] (HCA)

HIST1582W - Witchcraft, supernatural phenomena, and print culture in England, 1558-1650
Course Description

Role of printed broadsides, woodcuts, pamphlets, and treatises in spreading and influencing ideas about the supernatural. Responses to demonic possession, "monstrous" events, and magic. Social, legal, cultural, and religious contexts. Influence of expectations about gender and class. Development of theological and skeptical views. [3] (INT)

HIST1583 - History of German Thought
Course Description

From the Enlightenment to the present. German philosophy and critical theory in their social and political context. History of German intellectual movements. German thought as part of German culture. Taught in English. [3] (HCA)

HIST1584W - Foreigners and Citizens: Law and Rights in Modern Europe
Course Description

French Revolution to late 20th century. Laws, institutions, and debates over citizenship and human rights. Experiences of refuge, migration, assimilation, and ethnic cleansing. Influence of nationalism, communism, liberalism, secularism, and multiculturalism on discourses of civil and human rights. [3] (INT)

HIST1586W - Nazi Germany, the Holocaust, and Digital Humanities
Course Description

Local studies of Nazi Germany and the Holocaust using the tools of digital humanities. Map-generation using Arc-GIS and data linking. [3] (INT)

HIST1600 - European Economic History, 1000-1700
Course Description

From the commercial revolution of High Middle Ages to Industrial Revolution. Interconnections of economic forces with politics, society, and cultures. Rise of long distance trade; development of business and accounting techniques; public finance; monetary trends; advent of capitalist ethic. [3] (SBS)

HIST1605 - Economic Thought in Historical Perspective
Course Description

Economic thinkers and ideas from Antiquity to the Modern Era. Comparative, cross-cultural and international contexts, including America, Europe, China, Africa, India and the Middle East. Impact on institutions and economic organization. [3] (SBS)

HIST1610 - Global History of Debt
Course Description

Concepts of credit and debt. Rise of credit economy, debt and imperialism, globalization of sovereign borrowing, gold standard and international finance, and debt crises. Morality and laws of debt; political dimensions of aid and indebtedness. [3] (P)

HIST1640 - History of American Capitalism
Course Description

he development of American capitalism from the colonial period to the twenty-first century. The reasons for and effects of capitalist growth; the ways in which a largely agrarian society emerged as an industrial and commercial leader and shaped the ways Americans produced and lived. The political, social, and cultural dimensions of economic change. The global context of American development. [3] (US)

HIST1660 - American Enterprise
Course Description

Evolution of the form, organization, and structure of the American business firm from colonial times to the present. Entrepreneurs, labor management, financial capital, distribution, invention, and government regulation. [3] (US)

HIST1665 - Capital, Labor, and Democracy in the United States
Course Description

Nineteenth century to present. Tensions and connections between capitalism and democracy. Basic introduction to the social and political history of workers, business, politics, and organized labor. Questions of power and economic inequality as expressed in American political culture. [3] US

HIST1667 - Famous American Trials
Course Description

Salem witchcraft trials, Aaron Burr's treason trial, Emmett Till murder trial, and O.J. Simpson's murder trial as lenses to examine central themes in American culture, history, and memory. [3] (US)

HIST1669 - Making the Case for Civil Rights
Course Description

Court cases and contexts that framed the 20th century struggle for African American civil rights. Not open to students who have earned credit for HIST 2690 without permission. [3] (HCA)

HIST1672 - Six Pretty Good Books on U.S. Politics and Democracy
Course Description

Historical and contemporary political problems in the U.S. Analysis, debate, and discussion. Critical reading of semi-popular, semi-academic texts. [3] (US)

HIST1690 - Sea Power in History
Course Description

U.S. Navy's role in foreign and defense policies from the American Revolution to the present. Broad principles, concepts, and elements of sea power throughout history. Technological advances, interservice relations, strategies, and governmental policies pertaining to sea power. Designed to meet the NROTC requirement. Offered on a graded basis only. [3] (US)

HIST1691 - Evolution of Warfare
Course Description

Antiquity to the present. Evolution of strategic principles. Influence of technological, economic, moral, psychological, and political factors. Case studies from a soldier's perspective. Repeat credit for students who have completed NS 2311. [3] (No AXLE credit)

HIST1693 - Fundamentals of Maneuver Warfare
Course Description

[Replaces HIST 1692 Amphibious Warfare] Broad aspects of warfare and their interactions with maneuver warfare doctrine. Focus on the United States Marine Corps as the premier maneuver warfare fighting institution. Historical influences on current tactical, operational, and strategic implications of maneuver warfare practices. Case studies. Enrollment preference to NROTC students. Repeat credit for students who have completed HIST 1692. [3] (No AXLE credit)

HIST1699 - Militarization in 20th Century American Society
Course Description

Militarization as shaping 20th century American society. Conscription and citizenship; meanings of national identity; martial masculinities and femininities; impacts of war on racial politics; militarized welfare state; Cold War urbanisms; and militarized policing. [3] (US)

HIST1700 - Western Military History to 1815
Course Description

War in culture, politics, and society; technology, the Military Revolution and state-formation. [3] (INT)

HIST1710W - Writing for Social Change
Course Description

Practice of narrative, nonfiction writing for social change. History of American investigative journalism and scholarship. Interviewing, research, narrative and revision skills. [3] (HCA)

HIST1725W - United States and the Middle East
Course Description

U.S. involvement in the Middle East with emphasis on the period after 1945. Special attention on the Israeli-Palestinian conflict. Offered on a graded basis only. [3] (US)

HIST1730 - The U.S. and the Cold War
Course Description

U.S. history, 1945-1991. Emphasis on foreign policy and competition with Soviet Union. Impact of Cold War on American society. [3] (US)

HIST1735W - United States Intelligence Community, 1940 to the present
Course Description

Intelligence collection and analysis, covert action, and espionage in American foreign policy from World War II through the Cold War and 9/11. Legislative efforts to regulate and restrain. Contemporary dilemmas with terrorism, great power conflict, and technological advances. [3] (US)

HIST1740 - The U.S. and the Vietnam War
Course Description

Origins of American involvement, the reasons for escalation, and the Vietnamese response to intervention. The impact on America's domestic politics, the growth of the anti-war movement, and the economic, social, and cultural effects of the conflict. [3] (US)

HIST1760 - History of Christian Traditions
Course Description

Origins to the present. Jewish origins, formation of a Catholic tradition, church-state relations, and the social and cultural contexts of changing Christian beliefs and practices. [3] (HCA)

HIST1770 - United States' Religious History
Course Description

Religion's influence on the body politic and culture of society. Readings from several religious communities. How race, gender, and ethnicity shape religious identity. [3] (US)

HIST1780W - Self and Society in the United States
Course Description

Selfhood and identity development from the early Republic to the present. The role of race, class, and gender but also religion, politics, work, technology, and media in shaping selves in the United States. Readings include autobiographies, fiction, etiquette manuals, advertisements, and scientific tracts. Offered on a graded basis only. [3] (HCA)

HIST1882W - Japan Through Historical Fiction
Course Description

Premodern and modern history of Japan through works of Japanese historical fiction. Culture, religion, and society. Relationship between history and literature. [3] (INT)

HIST2100 - Politics and Catastrophe in Modern China
Course Description

Influence of politics on culture, society, government, and the military. The Cultural Revolution to Tiananmen Square. [3] (INT)

HIST2102 - Introduction to Brazil
Course Description

A multidisciplinary survey of Brazil from pre-Columbian times to the present, emphasizing culture, economic and political patterns, social issues, literature, and the arts in historical perspective. [3] (INT)

HIST2105 - Chinese Thought
Course Description

Confucianism and Philosophical Daoism. The Confucian Four Books, the Daodejing (Laozi), Zhuangzi, and Neo-Confucianism. [3] (INT)

HIST2106 - A Global History of Tea
Course Description

Origins in China to its spread around the world. Role of tea in culture and world events, as a driver of commerce, science, and exploration. Links to Buddhism and political power in East Asia. Diverse functions in different cultures. Tea as trade commodity. Manner of preparation and use. [3] (INT)

HIST2107 - Chinese Economic History
Course Description

China's economic history from the Bronze Age to the present. Creation and development of markets. Links among political power, transportation, trade, and money. 12th century proto-Industrial Revolution, early modernization, Communism, and hybrid free market under socialism. Prerequisite: 1060 or 1070 [3] (INT)

HIST2108 - Environment and Economy in China since 1700
Course Description

Economic activities and their interactions with the environment. Long-term patterns in imperial China, with focus on the modern period. Water control and the Chinese state. Property rights and resource management. Demography and food security. Waste and recycling. Development, revolution, and nature. Global China and ecological civilization. [3] (INT)

HIST2108W - Environment and Economy in China since 1700
Course Description

Economic activities and their interactions with the environment. Long-term patterns in imperial China and the modern period. Water control and the Chinese state. Property rights and resource management. Demography and food security. Waste and recycling. Development, revolution, and nature. Global China and ecological civilization. [3] (INT)

HIST2110 - Crisis Simulation in East Asia
Course Description

Strategic motivations and behaviors of international actors. Simulations of the decision-making process during critical historical moments in the East Asian context through role-playing and video games. Offered on a graded basis only. [3] (INT)

HIST2111 - China and the United States: Intertwined Histories
Course Description

Cultural, social, and economic interactions 1700s to the present. Chinese porcelain and tea trade in colonial America; American involvement in opium trade. Chinese students in the United States; American missionaries in China. Military conflicts and alliances. Mutual formation of cultural perceptions and misperceptions. [3] (P)

HIST2114 - Premodern Japan
Course Description

Japanese civilization from ancient times to the Meiji Restoration (1868). Connections between culture and politics; relations with neighboring regions in East Asia. [3] (INT)

HIST2115 - Play and Pleasure in Early Modern Japan
Course Description

Cultural history of Tokugawa Japan (1603-1868), with emphasis on daily life and popular entertainment in the capital of the warrior government, Edo (present-day Tokyo). Woodblock prints, pleasure quarters, kabuki theatre, commoner carnivals, and popular literature. [3] (INT)

HIST2119 - Modern Japan
Course Description

The political, social, economic, and cultural history of Japan in the nineteenth century to the present. Radical changes in the state, society, and economy and the effects of these changes on Japan's place in the world. [3] (INT)

HIST2120 - Japan's War and Postwar, 1931-1989
Course Description

Japan's war in Asia and the Pacific in the mid-twentieth century and its legacies. The effect of defeat on the nation; reconstruction efforts and economic success. Hirohito's death. [3] (INT)

HIST2130 - Russia: Old Regime to Revolution
Course Description

Russian history from the early nineteenth-century old regime through the Russian Revolution of 1917. Culture, society, and serfdom; the Great Reforms, ideology, and radicalism; industrialization; modernity in an agrarian society; twentieth-century revolutions. [3] (INT)

HIST2135 - Russia: The U.S.S.R. and Afterward
Course Description

Russian history since the 1917 Revolution. Overview of the old regime; revolution and civil war; the Soviet "Roaring '20s"; Stalinism and the totalitarianized society; World War II. Postwar Soviet society and culture; de-Stalinization and the sixties generation; Gorbachev, perestroika, and disintegration; contemporary history. [3] (INT)

HIST2137 - The Mandelas: Biography, Struggle, and Legacies
Course Description

Personal and political biographies of Nelson and Winnie Mandela. Their childhood, upbringing, education, professional and personal lives. Their legacies and lessons as global human rights icons through the anti-apartheid struggle, arrest, trials, imprisonment, freedom, presidency, and reconciliation. [3] (INT)

HIST2138 - Blood Diamonds, Blood Oil, Commodities, and Conflicts in Africa
Course Description

1870s to the present. Role of diamonds, gold, rubber, and oil in the resulting conflicts in modern Africa. Multinationals, mineral extraction, and politics. Poverty, war, child labor, and corruption. Local and international mining and mineral syndicates. Implications for Africans and their livelihoods. [3] (INT)

HIST2139 - Technology, Nature and Power in Africa
Course Description

Early modern to present. How politics and technology shape everyday life in Africa and have been shaped by competing groups. Critiques the narrative that Africa lacks technological sophistication. Shifting meanings of technology; Africa's role in global history of technology; forms of technological engagement including guns, radios, roads, nuclear power, and biometrics. [3] (P)

HIST2140 - The Mughal World
Course Description

Mughal history from 1500-1750. The early modern world and Islamic empires. Akbar and Hindu-Muslim interactions in South Asia. Oriental despotism and the idea of the monarch. Gender and authority. English, Dutch, and Portuguese views. Trade and the decline of Mughal authority. Globalization, the rise of Indian entrepreneurs, and the East India company. [3] (INT)

HIST2150 - India and the Indian Ocean
Course Description

Cultures along the Indian Ocean coastline from Roman times to 1800, especially South Asia. Coastal societies and politics, Islam, pilgrimage and trade, economic zones, and cultural ties. Pirates, seafarers and merchants; diasporas and genealogies. The entry of European trading companies and debates on trade and empire. [3] (INT)

HIST2151 - Origins of Roman Law, Common Law, and Civil Law
Course Description

Relationship between law and society as illustrated by cases drawn from Roman legal and literary sources. Influence of Roman law on the Civil and Common Law traditions in family and property relationships. Taught in Trento, Italy [3] (SBS)

HIST2154 - Arabia Through the Ages
Course Description

Environmental, political, social, cultural, and religious history of the Arabian Peninsula. Ancient towns and kingdoms. Bedouins. Spice trade. Pre-Islamic religions; monotheism. Rise of the Wahhabi movement and the development of Salafism. Exploration of remote deserts by European adventurers. Ottoman and British colonialism. Saudi Arabia from its foundation to the oil boom. Globalization. Offered on a graded basis only. [3] (INT)

HIST2155 - Muhammad and Early Islam
Course Description

Early Arabian society, Judaism and Christianity in Arabia; Muhammad and the birth of Islam, the conquests, Islamization, Arabization; Jewish influences in early Islam, the medieval Islamic world. [3] (INT)

HIST2160 - Medicine in Islam
Course Description

Emergence of medicine in the Islamic world. Links with other traditions. Doctors and society; conventional medical practice in hospitals; prophetic medicine; Jewish and Christian doctors in Islam; pharmacology; developments in the nineteenth-century. Not open to students who have earned credit for HIST 1111 Section 21 without permission. Total credit for this course and HIST 1111 Section 21 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (INT)

HIST2165 - Modern Middle East
Course Description

Early nineteenth-century to the present. North Africa and Southwest Asia. Late Ottoman Empire and its end. European colonialism and national liberation. Gender, labor, and religiosity. Capitalism, environment, and oil. Law, migration, and popular culture. Authoritarianism and revolution. [3] (INT)

HIST2170 - Islam and the Crusades
Course Description

Ideology; successes and failures; history and character of Crusader enterprises in the Holy Land and elsewhere. Muslim religious, political, ideological, and social reactions. Islamic culture and the West; relations among Crusaders, Muslims, and Jews. [3] (P)

HIST2180 - Islamic Narratives: Narratives of Islam
Course Description

History and historiography in Arab Islam. Aims and uses of historical writing in the religious context. Comparison with other pre-modern cultures. Islamic and non-Islamic sources for Islamic history. Examples from the ancient world, early Islam, Middle Ages, and the political entity known as the Islamic State. [3] (HCA)

HIST2190 - Last Empire of Islam
Course Description

The Ottoman "long nineteenth century," 1789 to 1923. The Reforms (Tanzimat), state patriotism, intercommunal relations, national "awakenings," and the emergence of a public sphere. Historiographical issues, such as perceptions of the empire as the "Sick Man of Europe" and debates over its decline. [3] (INT)

HIST2205 - History of the Roman Republic
Course Description

The growth and evolution of the Roman world, from the foundation of the city in the seventh century B.C. to the reign of Caesar Augustus. The Romans' unification of Italy, conquest of the Mediterranean and western Europe, adoption of Hellenism, and overthrow of the Republic. [3] (INT)

HIST2210 - History of the Roman Empire
Course Description

The Roman world from Augustus to the collapse of the western empire in the fifth century. Political, military, social, and religious history. Special attention given to problems arising from use of the primary sources as well as to controversies in modern scholarship. [3] (INT)

HIST2212 - Revolutions and Post-Communisms in Eastern Europe and Eurasia, 1981-2010
Course Description

Life in the Soviet Imperium. Revolutions of 1989 in Eastern Europe. Disintegration of the U.S.S.R., 1989-1991. Challenges of neoliberal transitions to free-market democracies. Post-socialist culture. Ecology and environmentalism; globalization; gender; religion and ideology; mass media; violence; ethno-nationalism; and authoritarianism. Taught in English. Serves as repeat credit for students who have earned credit for EUS 2212 or RUSS 2810/5810. [3] (P)

HIST2220 - Medieval and Renaissance Italy, 1000-1700
Course Description

Transformation of Italy from "medieval" society to the "Renaissance." Cultural, economic, and social developments, especially connections among wealth, status, and patronage. Meaning and applicability of the term "Renaissance." [3] (HCA)

HIST2230 - Medieval Europe, 1000-1350
Course Description

Economic expansion and the formation of national states; the medieval Church and the revival of learning in the twelfth and thirteenth centuries. [3] (INT)

HIST2237 - Democracy & Dictatorship: Ancient Politics
Course Description

Politics and political culture between Greece and Rome. Athenian mass democracy and its critics. Hellenistic kingship. Roman Republicanism and transition to emperors. Rhetoric and mass communication. [3] (SBS)

HIST2238 - Crime and Criminal Law in Western Antiquity
Course Description

Ancient Athens and Rome. Social values and the quest for justice through the legal system. Definition of offenses, procedures, and penalties. Impact of social, economic, and legal status as well as gender. Serves as repeat credit for CLAS 3160. [3] (SBS)

HIST2239 - Sex and the Citizen: Women and the Law in United States
Course Description

Law's relationship to gender and sexuality from the seventeenth century to the present. Legal categories of gender that have governed the household, the economy, and the political sphere. [3] (US)

HIST2240 - Sex Law
Course Description

Law concerning marriage, adultery, and homosexuality. Roman, Canon, and Civil Law from Antiquity to the present. [3] (INT)

HIST2250 - Reformation Europe
Course Description

The political, intellectual, and social conditions underlying the Protestant revolt. The Reformation of Luther, Calvin, Zwingli, Loyola, and other religious reformers considered within the context of the general developments of sixteenth-century history. [3] (INT)

HIST2255 - Inventing the Modern Economy: Eighteenth-Century Europe
Course Description

Economic transformation and the development of Enlightenment political economy in eighteenth-century Europe. New patterns of economic growth and foundations of modern capitalism: colonial commodities and slavery; 'Consumer Revolution'; credit and lending; and industrialization. Political, social, and economic responses by philosophers such as Mandeville, Montesquieu, the physiocrats, and Smith. [3] (INT)

HIST2260 - Revolutionary Europe, 1789-1815
Course Description

Political, cultural, and economic upheavals in the late eighteenth and early nineteenth centuries; the French Revolution and Napoleon, romanticism, and early industrialization. Emphasis on Britain, France, and Germany. [3] (INT)

HIST2270 - Nineteenth-Century Europe
Course Description

Major political, social, economic, and cultural developments from 1815 to 1914. [3] (INT)

HIST2280 - Europe, 1900-1945
Course Description

Political, socioeconomic, cultural, and colonial history of Europe from 1914 to the fall of Hitler. [3] (INT)

HIST2290 - Europe since 1945
Course Description

Origins of the Cold War; political and social transformations, East and West; the breakup of colonial empires; ideological and military tensions; intellectual and cultural trends. [3] (INT)

HIST2293 - Muslims in Modern Europe
Course Description

Eighteenth century to the present. Eastern and Western Europe. Legal, political, and cultural integration and discrimination; questions of secularism and religious freedom; and gender, family law, and democracy. Muslim responses to modernity and formation of global Islamic movements. [3] (HCA)

HIST2294 - Eastern Europe: Critical Encounters
Course Description

Eastern Europe from Enlightenment to 1989. Nineteenth century imperial competition, birth of nation-states. Minority rights, World War II and the Holocaust, socialist experimentation, police state, and dissent. Revolutions of 1989. [3] (INT)

HIST2300 - Twentieth-Century Germany
Course Description

The turbulent history of Germany, as it went from authoritarian state to volatile democracy, to National Socialist dictatorship, to divided country, and to reunification. Special emphasis placed on the Nazi dictatorship, its origins and legacy. [3] (INT)

HIST2310 - France: Renaissance to Revolution
Course Description

Social and cultural history from 1515 to 1815. Conditions of life, ambitions, ideas, and tastes of the various social groups. Development of arts, music, and literature in a sociopolitical context. Causes and consequences of the French Revolution of 1789. [3] (INT)

HIST2340 - Modern France
Course Description

The fall of Napoleon in 1815 to the present. Emphasis on politics. Major economic, social, cultural, and intellectual developments. [3] (INT)

HIST2380 - Shakespeare's Histories and History
Course Description

Readings from a variety of plays by Shakespeare and his contemporaries. Significant political and cultural issues from the 1590s in early English history. [3] (HCA)

HIST2382 - The Rise of the Tudors
Course Description

Causes and course of the political crisis in the fifteenth century and the rise of the Tudor monarchy. Political and religious forces that drove the English Reformation and its immediate consequences. Serves as repeat credit for HIST 2385. [3] (HCA)

HIST2383 - A Monarchy Dissolved? From Good Queen Bess to the English Civil War
Course Description

Creation of political stability out of the turmoil caused by the English Reformation and its dissolution only forty years later. The relationship between religion and politics, state and society. Serves as repeat credit for HIST 3260. [3] (HCA)

HIST2385 - The Real Tudors
Course Description

Marital, dynastic history of the Tudors in relation to religious and political change through and after the English Reformation. Court politics, ideological conflict, and the rise of an increasingly confessionalized international politics. Offered on a graded basis only. Serves as repeat credit for HIST 2382. [3] (HCA)

HIST2410 - Victorian England
Course Description

Cultural values, liberal reform; urbanization; women and gender; imperialism. [3] (INT)

HIST2413 - Global History of Waste
Course Description

From nineteenth century to present. Environmental, cultural, economic and labor history of waste. Production, consumption and disposal practices. Environmental injustice and socio-economic inequalities associated with garbage and toxicity. Castaways as historical artifacts. Case studies of urban sewage, plastic and toxic pollutants, electronic waste, landfills, and recycling. Material culture studies and local site visits. Serves as repeat credit for students who have earned credit for HIST 2413W. [3] (P)

HIST2413W - Global History of Waste
Course Description

From nineteenth century to present. Environmental, cultural, economic, and labor history of waste. Production, consumption, and disposal practices. Environmental injustice and socio-economic inequalities associated with garbage and toxicity. Castaways as historical artifacts. Case studies of urban sewage, plastic and toxic pollutants, electronic waste, landfills, and recycling. Material culture studies and local site visits. [3] (P)

HIST2450 - Reform, Crisis, and Independence in Latin America, 1700-1820
Course Description

Reorganization of the Spanish and Portuguese empires; maturation of transatlantic societies; and revolutions for independence. [3] (INT)

HIST2457 - Drug Trafficking and Society in Latin America
Course Description

Narcotics trafficking between Latin America and the United States. Complexities of production, transport, and trade. U.S. drug policy and politics. The 'drug war'. Violence, social problems, and political issues related to drugs in Latin America. Representation of the drug trade and drug culture. [3] (INT)

HIST2470 - Revolutionary Mexico
Course Description

Revolutionary politics and radical expression in 20th century Mexico. Causes of popular unrest; violent political change; post-conflict state-building; government attempts to alter popular culture; radical muralism and graphic art; revolutionary expression and gender; literature and disenchantment. [3] (INT)

HIST2480 - Central America
Course Description

Iberian and Amerindian background, colonial society; independence; growth of the plantation economy; the U.S. presence; political and social revolutions in the twentieth century. [3] (INT)

HIST2490 - Brazilian Civilization
Course Description

From pre-Columbian times to the present. Clash and fusion of Portuguese, Amerindian, and African cultures; sugar and slavery; coffee and industrialization; race relations; dictatorship and democracy in the twentieth century. [3] (INT)

HIST2510 - Reform and Revolution in Latin America
Course Description

Comparative analysis of revolutions and reform movements in twentieth-century Latin America focusing on land tenure, social classes, political culture, economic structures, and foreign influences. [3] (INT)

HIST2530 - African Religions in Americas
Course Description

An interdisciplinary study of Islam, Christianity, and Animist religions in pre-colonial Africa; their transformation and practice in the Americas. Case studies of Brazil, Cuba, and the American South. Material culture studies and visits to local museum exhibits. [3] (INT)

HIST2535 - Latin America and the United States
Course Description

The complicated relationship between Latin America and the United States from the early nineteenth century to the present. Role of ideology, national security, economic interests, and cultural factors in shaping inter-American affairs. [3] (INT)

HIST2540 - Race and Nation in Latin America
Course Description

Late nineteenth century to the present. Social, political, and cultural constructions of belonging. Citizenship and state building. Immigration, education, urbanization, civil and international wars, and gender and sexuality. Case studies draw from the Andes, Spanish Caribbean, Southern cone, and Brazil. [3] (INT)

HIST2542 - Cuba and the United States
Course Description

History of Cuba. European conquest, the colonial period, independence, U.S. intervention, the Cuban Revolution, Cold War to present. Special consideration given to the global impact of the Cuban Revolution. [3] (INT)

HIST2544 - Panama: Global Crossroads
Course Description

Panama, its colonial history, ties to Colombia, French canal project, independence, and United States' control and intervention. Panama Canal and its worldwide significance. [3] (INT)

HIST2570 - Caribbean History, 1492-1983
Course Description

Amerindian society; age of encounter; imperial contest; slavery and abolition. U.S. influence; independence movements; cultural movements; invasion of Grenada. [3] (INT)

HIST2580 - American Indian History before 1850
Course Description

Indian nations' interaction with each other and with European colonies. Resistance and adaptation to colonialism. Early development of United States Indian policy. [3] (US)

HIST2590 - American Indian History since 1850
Course Description

American Indians in the United States and Canada. Their responses to government policies and other forces. Cultural, socioeconomic, and political change among Indian communities. [3] (US)

HIST2595W - Pirates, Plantations, and Power: The English Atlantic World, 1500-1688
Course Description

Elizabethan era to Glorious Revolution. Shift from piracy to colonization of Ireland and the Americas. Cross-cultural contact, race formation, economies of empire, and migration. [3] (US)

HIST2610 - The Founding Generation
Course Description

American history from the 1760s to the 1820s. The Revolutionary War, the Constitution, formation of national government. Political conflict, national culture, commerce, diplomacy, and race and gender in an age of revolution. Primarily for Juniors and Seniors. [3] (US)

HIST2620 - The Old South
Course Description

The South's origins in European expansion; the rise of the plantation economy and society, and its identification with slavery; the differing experiences of whites and blacks, planters and nonplanters; the relationship of the region to the larger United States; the Confederate attempt at independence and the collapse of the slave regime. [3] (US)

HIST2630 - The New South
Course Description

The aftermath of war and emancipation and the era of Reconstruction; social change and dislocation in the late nineteenth century; the Populist Revolt; the origins of segregation and one-party politics. Twentieth-century efforts to modernize the region; the economic, political, and Civil Rights revolutions of the mid-twentieth century; the South in modern American society and politics. [3] (US)

HIST2640 - Appalachia
Course Description

The region from first European intrusions to the present. Frontier-era white-indigenous contact, antebellum society and economy, relations with the slave South, the Civil War and postwar politics, increasing social strainings, industrialization and labor conflict, poverty and outmigration. Examination of mountain culture, tourism, and the construction of the "hillbilly" image. [3] (US)

HIST2650W - Slavery, War, and Emancipation: United States History, 1820-1900
Course Description

Causes, events, and consequences of the U.S. Civil War. The battles of Reconstruction and their aftermath. Political elites, military leaders, and ordinary women, men, and children, including enslaved and newly emancipated African Americans. National and transnational dimensions of struggles over race, rights, slavery, and emancipation. [3] (US)

HIST2651 - Comparative Reconstructions in the United States
Course Description

Comparative analysis of post- Civil War Reconstruction and modern Civil Rights Movement. Questions of citizenship, social change, state mobilization, and political power in parallel movements one hundred years apart. Enduring issues of the role of the state, social movements, political identities, and war in rebuilding U.S. institutions and laws with regard to race relations in United States. [3] (US)

HIST2655 - Historic Black Nashville
Course Description

From settlement through the Civil War. Secondary literature and archival research to identify significant black history sites in Nashville. Not open to students who have earned credit for UNIV 2655. Offered on a graded basis only. [3] (US)

HIST2658 - Law and Society of the Seas, 1400-1900
Course Description

Maritime cultures and legal conflicts at sea. Lived experiences of sailors and captives. Strategies of states and navies. Violence at sea; piracy and mutinies. Offered on a graded basis only. [3] (INT)

HIST2660 - The Birth of Modern Capitalism and Human Trafficking
Course Description

Closure of the Atlantic slave trade in eighteenth and nineteenth-century Britain and the United States. State formation, the birth of modern human rights discourse, and ideas about compassionate capitalism. [3] (INT)

HIST2662 - Slavery in the United States
Course Description

History of American slavery, from the formation of a slave power in the seventeenth century to the defeat of the slaveholders' republic in the wake of the Civil War. [3] (US)

HIST2684 - The History of Black Power
Course Description

Nineteenth to twenty-first centuries. History, impact, and legacies of black power politics broadly, and the Black Power Movement specifically, in the United States and abroad. [3] (HCA)

HIST2685 - Race and U.S. Visual Culture
Course Description

From the 1700s to the present. Iconic texts, major themes, and transformative figures in the representational history of African Americans. Art and photography as strategies for racial uplift. Intra-racial satire. Black entertainment culture and societal imagery. Issues of gender, class, and sexuality. [3] (P)

HIST2686 - Race, Rights, and the American Dream
Course Description

Primarily post 1930s to the present. Exploration of the concept of the U.S. "American Dream." Emphasis on race, gender, class, and power dynamics as related to urban space, housing, work, and identity. Inequality, rights, and social action. Offered on a graded basis only. [3] (US)

HIST2689 - "Women of Color": History, Theorizing & Organizing in the United States
Course Description

Examines the historical roots of the term "Women of Color". Theories, politics, coalitions, and struggles that emerged in the United States from the late 1960s to the present. Offered on a graded basis only. [3] (US)

HIST2690 - The Civil Rights Movement
Course Description

Following two decades of progress from Brown v. Board of Education in 1954 toward racial justice and equality in the United States. Leaders, organizations, and milestones. Not open to students who have earned credit for HIST 1669 without permission. [3] (US)

HIST2691 - Barack Obama: Man and President
Course Description

Examination of Obama's presidency. Exploration of background influences and their impact in domestic & foreign affairs. [3] (US)

HIST2692W - Biographies of Struggle
Course Description

Struggles for social justice. Identity, politics, and protest. Exploration of issues, traditions, and targets. Biography, personal testimonies, and oral life narratives of people engaged in efforts to challenge oppression. [3] (US)

HIST2700 - The U.S. and the World
Course Description

From the winning of independence to the Great Depression. Relationships among foreign policy, ideology, domestic politics, and social and economic change. [3] (US)

HIST2710 - The U.S. as a World Power
Course Description

From the origins of World War II, through the Cold War, to the present day. Relationships among foreign policy ideology, domestic politics, and social economic change. [3] (US)

HIST2720 - World War II
Course Description

Origins and causes of the global conflict; the six years of military campaigns; politics and diplomacy of war-making; race as a factor shaping the war in Europe and Asia. Impact of technological innovations; social and economic aspects of the struggle, as well as its moral and psychological implications. [3] (INT)

HIST2721 - Globalizing American History, 1870-1940
Course Description

Immigration; diasporic social movements; transnational social reform campaigns; military, colonial, and corporate empire-building; expansion of missionary activity; United States' participation in World War I. [3] (US)

HIST2722 - Globalizing American History, 1940-2010
Course Description

The rise of U.S. world power after 1940 and the transformation of American society through its global interactions. Impact of transnational mobility and communications, connected social movements, war and militarization, and mass immigration. [3] (US)

HIST2725 - Race, Power, and Modernity
Course Description

Historical approaches to race as a modern system of power and difference. The United States experience in comparative and transnational perspective. Race as an historical and socially-constructed ideological system. Race intersecting with nationality, region, class and gender. Race in the making of space, citizenship, and economic institutions. [3] (US)

HIST2730 - American Masculinities
Course Description

Changing definitions of manhood and masculinity from the colonial period to the post-9/11 era. The rise of democratic politics, industrialization, slavery and emancipation, feminist politics, and the growth of the global power of the United States. [3] (US)

HIST2735 - Debating America in the World, 1890-2010
Course Description

Debates about the U.S. role in shaping the twentieth century. War; colonialism and anti-colonialism; immigration; participation in international institutions. [3] (US)

HIST2740 - Immigration, the United States, and the World
Course Description

Mid-nineteenth century to present. Relationship between U.S. immigration policy and politics; international relations. Impacts of war, diplomacy, and international pressure on U.S. immigration policy. [3] (US)

HIST2749 - American Thought to 1865
Course Description

U.S. intellectual tradition from the colonial era to the Civil War. Popular thinkers and elite intellectuals including John Winthrop, Thomas Jefferson, Frederick Douglass, and Abraham Lincoln. Race, slavery, nation, and gender. Intellectual movements ranging from abolitionism to Social Darwinism. [3] (US)

HIST2750 - American Intellectual History since 1865
Course Description

Modern U.S. social thought. Debates over progress, science, nationalism, race, and economy. Ideas in their cultural context. Popular as well as elite thinkers. [3] (HCA)

HIST2750W - American Intellectual History since 1865
Course Description

Modern U.S. social thought. Debates over progress, science, nationalism, race, and economy. Ideas in their cultural context. Popular as well as elite thinkers. Repeat credit for students who have earned credit for HIST 2750. [3] (HCA)

HIST2752 - African American Intellectual History Since 1776
Course Description

From the American Revolution to the present. Phillis Wheatley, Frederick Douglass, W.E.B. Du Bois, Amy Jacques Garvey, and Barack Obama. Black abolitionism, Pan-Africanism, black internationalism, Marxism, and black feminism. [3] (US)

HIST2760 - The Historian and the Law
Course Description

Contemporary legal history and the role of law in shaping historical research. Doctrinal history, legal culture, colonial encounters, and crime and violence. Formal versus informal modes of state and community control and sanction. Serves as repeat credit for students who have earned credit for HIST 2760W. [3] (SBS)

HIST2760W - The Historian and the Law
Course Description

Contemporary legal history and the role of law in shaping historical research. Doctrinal history, legal culture, colonial encounters, and crime and violence. Formal versus informal modes of state and community control and sanction. Serves as repeat credit for students who have earned credit for HIST 2760. [3] (SBS)

HIST2780 - Superhuman Civilization
Course Description

Trends in human biological enhancement through the re-engineering of basic physical and mental traits. Debates over transhumanism, designer babies, neuroethics, and technological determinism. Long-term implications for social justice and human identity. [3] (P)

HIST2790 - Human Flourishing
Course Description

Two millennia of interdisciplinary debates over the nature and causes of happiness, meaningful experiences, and a life well-lived. Ancient Asia and Greece to contemporary Positive Psychology. Global, national, personal, and spiritual dimensions. Human agency and impactful choices in processes of societal and individual change. [3] (P)

HIST2800 - Modern Medicine
Course Description

Scientific, social, and cultural factors influencing the rise of modern medicine. Europe and the U.S., 1750 to the present. [3] (P)

HIST2810 - Women, Health, and Sexuality
Course Description

Women as patients and healers in the U.S. from 1750 to the present. Topics include women's diseases and treatments; medical constructions of gender, sexuality; childbirth, birth control, abortion; midwives, nurses, and doctors. [3] (US)

HIST2835 - Sexuality and Gender in the Western Tradition to 1700
Course Description

Politics, war, and masculinity; Christianity and sexuality; changing ideas about gender roles and sexual practices. [3] (P)

HIST2840 - Sexuality and Gender in the Western Tradition since 1700
Course Description

Modern masculinity, femininity, and gender roles; origins of identity politics and changing sexual norms; contemporary feminist issues. [3] (P)

HIST2845 - Race, Gender, and Slave Emancipation
Course Description

Comparative and Atlantic world history. Haiti, United States, Caribbean, Brazil, and South Africa. Novels, plays, and slave narratives. Slavery and post-emancipation. [3] (INT)

HIST2855 - Women and Gender in the U.S. to 1865
Course Description

Social and cultural history of gender, race, and sexuality as represented in literary, legal and artistic texts. Exploration of Native American conquest, captivity narratives, abolitionism and sentimental fiction, nationalism and gender ideas. [3] (US)

HIST2860 - Women and Gender in the U.S. since 1865
Course Description

Social and cultural history of the intertwined ideas and practices of gender, race, and sexuality. Exploration of experiences, representations, and activism in feminist and gay rights movements, interracial unions, marriage and the family, black women's activism, suffrage, and sexual revolutions. [3] (US)

HIST2995 - Antisemitism: A History
Course Description

Pre-history and history of modern anti-Jewish sentiments and actions from the Middle Ages to the present; focus on Europe and the United States. [3] (INT)

HIST3000W - The History Workshop
Course Description

Introduction to the "historian's craft." Reconstructing the past using primary documents such as diaries, letters, memoirs, and declassified government papers. Methods of historical research and reasoning through individual projects. Offered on a graded basis only. [3] (SBS)

HIST3010 - Pornography and Prostitution in History
Course Description

Commercialization of the sex trade, Renaissance to the present. Political scandal, capitalism, and globalization; effects of technological change, from the printing press to the Internet. Readings from anthropology, psychology, and feminist theory. [3] (P)

HIST3040 - Health and the African American Experience
Course Description

Disparities in the health care of African Americans, the training of black professionals, and the role of black medical institutions. The intersection between black civic involvement and health care delivery; the disproportionate impact of disease and epidemics within the African American population. [3] (US)

HIST3045W - Eugenics in the U.S., 1865-present
Course Description

Comparative perspective. Compulsory sterilization, restrictive immigration acts, "fitter family" contests, medical genetics, and eugenic counseling. Ideas and practices shaped by attitudes toward race, gender, class, and disability. [3] (US)

HIST3050 - Innovation
Course Description

Origin, reception, and cultural impact of technological innovation. New technologies from the mid-nineteenth century through present-day Silicon Valley and their technical, social, economic, and political dimensions. [3] (P)

HIST3070W - Science, Technology, and Modernity
Course Description

Social, cultural, intellectual, and artistic responses to the challenges posed by modern science and technology from the mid-nineteenth to the mid-twentieth centuries. Offered on a graded basis only. [3] (P)

HIST3090 - Tokyo: History and Image
Course Description

Tokyo and its representation in various media from the mid-nineteenth century to the present and imaginings of the future. The city's physical development and image in photographs, films, novels, essays, and other textual and visual materials produced within Japan and beyond. [3] (INT)

HIST3100 - Pirates of the Caribbean
Course Description

Imperial competition for control of the Caribbean and state-sponsored piracy. The economic and political consequences of piracy in the Caribbean. The life of pirates aboard ship and in port. [3] (INT)

HIST3110 - Trade and Politics in Monsoon Asia, 1400-1800
Course Description

Early modern maritime Asia. Economic dynamics, trade networks, and political engagements. Commercial and monetary connections. Material culture and conspicuous consumption. The Great Divergence. Clashes of empires. Changing maritime policies and economic thought. Pirates, smugglers, and warlords. Migration and mixed identities. [3] (INT)

HIST3111 - Debates in Chinese History
Course Description

Contentious topics in historical scholarship on Qing and twentieth-century China. Borderland studies, the New Qing History, and China-Europe Great Divergence. The tribute system, models of international order, colonialism and law, and the Communist Revolution. Definitions of "China." Prerequisite: HIST 1060, 1070, or 2108. [3] (INT)

HIST3112W - China and the World
Course Description

China's role in global currents since the seventeenth century. China as engine of early-modern global trade. The Chinese diaspora's transnational impact. Cosmopolitan semi-colonial cities (such as Shanghai) as incubators of global modernity. China as an innovator and exporter of cultural "goods" in the twentieth century, from revolution to medicine. Offered on a graded basis only. Repeat credit for students who have earned credit for HIST 3112. [3] (INT)

HIST3120 - Weimar Germany: Modernism and Modernity, 1918-1933
Course Description

Culture and politics. Mass politics, mass media, economic crisis, and social tensions. Architecture, film, theater, painting, and philosophy. Serves as repeat credit for students who have earned credit for 3120W. [3] (HCA)

HIST3120W - Weimar Germany: Modernism and Modernity, 1918-1933
Course Description

Politics and culture. Mass media, economic crisis, and social tensions. Architecture, film, theater, painting, and philosophy. Serves as repeat credit for students who have earned credit for 3120. [3] (HCA)

HIST3140 - History of New Orleans
Course Description

The city since its founding. Interactions between urban society and natural environment; historical and cultural significance of New Orleans in light of post-Katrina disaster and reconstruction. [3] (US)

HIST3150 - Cities of Europe and the Middle East
Course Description

Cities of "East" and "West" in the modern period; distinguishing characteristics and shared patterns of urban modernity across different geographies. Conceptions of the European, Middle Eastern, and Islamic metropolis. [3] (INT)

HIST3170 - The Federalist Papers
Course Description

Classic works on American constitutionalism and government and their views on human nature and republicanism. The framers' rejection of democracy and fear of legislative abuses. The Constitution's emphasis on institutional protections for liberty and checking abuses of power. [3] (US)

HIST3180 - Making of Modern Paris
Course Description

The social and cultural history of Paris from the old regime to the present. Paris versus the French provinces; revolutionary upheavals; challenges of rapid urbanization. Paris as a literary, artistic, and consumer capital; its changing physical landscape. Immigration and the globalization of Paris. [3] (INT)

HIST3190 - Religion, Culture, and Commerce: The World Economy in Historical Perspective
Course Description

Cross-cultural trade in a broad chronological and geographical framework. Pre-modern and modern times, western and non-western locales. The role of religion in economic exchange and the movement of commodities. Offered on a graded basis only. [3] (HCA)

HIST3200 - Poverty, Economy, and Society in Sub-Saharan Africa
Course Description

History of poverty from pre-colonial times to the present. The evolution of economic systems and trading; impacts of trans-oceanic slave, commodity trading, and colonialism on Africans' standards of living; contemporary African economic challenges of underdevelopment, debt, foreign aid, fair trade, and globalization. [3] (INT)

HIST3209 - Sex, Marriage, and the Body in Islamic Law
Course Description

Islamic laws related to gender from the seventh century to the present. Qur'an and the Hadith on veiling, marriage, adultery, and men's and women's dress. Differences between Sunni and Shi'ite inheritance codes. Medieval jurists' understanding of reproduction and pregnancy. Modern developments, ranging from the movement for equal voting rights to new technologies such as ultrasounds. Offered on a graded basis only. [3] (P)

HIST3210 - Muslims, Christians, and Jews in Medieval Spain
Course Description

Coexistence and conflict from 711 to 1492. The blend of cultures, languages, religions, and societies under both Christian and Islamic rule. Offered on a graded basis only. Not open to students who have earned credit for JS 1111 Section 01 without permission. Total credit for this course and JS 1111 Section 01 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (INT)

HIST3215 - The Other 1492: Muslims and Jews in Iberia and Beyond
Course Description

History of Muslims and Jews in Iberia and diaspora from the Medieval through modern eras. Muslim Spain (Al-Andalus) and Christian Spain; forced conversions, the Inquisition, expulsion, resettlement, and real and imagined return. [3] (INT)

HIST3220W - Images of India
Course Description

Images in and of South Asia as studied through maps, religious imagery, print culture, cinema, and architecture. The politics of visual stereotypes of India. The visual history of Orientalism, modernity, gender, and religion in South Asia. [3] (INT)

HIST3230 - The Art of Empire
Course Description

Visual media in the establishment of modern empires, with emphasis on Western Europe. Image-making and power; art in cultural exchange and the definition of race, ethnicity, and gender. [3] (HCA)

HIST3240W - Culture of the Sixties in Europe and the U.S.
Course Description

Youth, rock 'n roll, sexual attitudes, black power, counterculture, and conservative reaction. Cultural revolution or myth. [3] (INT)

HIST3260 - Revolutionary England, 1603-1710
Course Description

Causes, nature, and consequences of the English Revolution and the Glorious Revolution. Religious struggle, the fiscal-military state; political thought; parliament and party politics. The Stuart dynasty; the English Republic; court culture and civil war. Serves as repeat credit for HIST 2383. [3] (HCA)

HIST3270 - Religion and the Occult in Early Modern Europe
Course Description

Popular and learned ideas about religion and the supernatural within the context of the religious reforms of the sixteenth century. Alchemical and astrological practices to ghosts, werewolves, fairies, and other supernatural beings. The witch craze phenomenon of 1560-1650. Offered on a graded basis only. [3] (HCA)

HIST3275 - Religion and Popular Culture in Nineteenth-Century Europe
Course Description

Popular religious beliefs and practices in their social, cultural, political, and gender contexts. Concentration on Britain, France, and Germany. Offered on a graded basis only. [3] (SBS)

HIST3280 - Popular Cultures in Modern Latin America
Course Description

1800 to the present. Music, theater, literature, art, dance, and religion. Cultural performance among popular groups and their attempts to construct, control, and commercialize expression. [3] (INT)

HIST3285 - Citizenship, Literature, and Slavery
Course Description

Literature, law, citizenship, and slavery; 19th century; comparative and transnational; literary and historiographical methods. [3] (INT)

HIST3290 - Nazism, Genocide, and the Law
Course Description

Legal responses to genocide in the aftermath of Nazism. Prosecution of Holocaust perpetrators and war criminals from Nuremberg Trials to today. Restitution and compensation. Later prosecution for crimes against humanity and its relation to post-WWII precedents. Transitional justice and witnessing. [3] (INT)

HIST3310W - Bible in the Greek World
Course Description

Politics, language and culture in the Ancient Near East before and after Alexander. The Diaspora, Philo, and ancient libraries. The Septuagint's creation and translation in the Hellenistic world. Relation to the Bible and Christianity. Offered on a graded basis only. Not open to students who have earned credit for JS 2640 or JS 2640W. [3] (HCA)

HIST3333 - Pandemics and Society in Historical Perspective
Course Description

Religious, racial, political, economic and human (psychological) consequences of global pandemics in the pre-modern world, from Antiquity to the Black Death (1348). Assess ways contagion transforms societies and its relation to concurrent issues of violence and social justice. [3] (HCA)

HIST3746 - Workshop in English and History
Course Description

(Also listed as English 3746) Team-taught by a historian and an interdisciplinary scholar. Explores intersection of disciplines through close examination of texts in historical context. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Preference to students majoring in the English-History program. [3] (No AXLE credit)

HIST3850 - Independent Study
Course Description

A program of reading in one field of history to be selected in consultation with an adviser. Normally limited to qualified majors in history. Approval of faculty adviser and director of undergraduate studies required. May be repeated for credit once if there is no duplication in topic and not twice from the same instructor, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits for all semesters of HIST 3850] (No AXLE credit)

HIST3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private agencies, institutions, and programs. In some cases, such as historical societies or museums, history is a central part of the organization's missions; in other cases, the student will play a role in managing the institution's records or writing its history. Two options are available. (1) full-time: 12-15 hours total, including 6-9 hours in 3880, 3 hours in 3881, and 3 hours in 3882. (2) Part-time: 6-9 hours total, including 3-6 hours in 3880 and 3 hours in either 3881or 3882. To be accepted for either option, students must have a 2.90 grade point average and 6 hours of prior work in history; they must submit a specific plan for the internship to the director of undergraduate studies. After completing the internship, all students must write a thorough report. Must be taken Pass/Fail and concurrently with 3881 and/or 3882. These hours may not be included in the minimum hours required for the history major. Corequisite: 3881 and/or 3882. [3-9] (No AXLE credit)

HIST3882 - Internship Readings
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private agencies, institutions, and programs. In some cases, such as historical societies or museums, history is a central part of the organization's missions; in other cases, the student will play a role in managing the institution's records or writing its history. Two options are available. (1) full-time: 12-15 hours total, including 6-9 hours in 3880, 3 hours in 3881, and 3 hours in 3882. (2) Part-time: 6-9 hours total, including 3-6 hours in 3880 and 3 hours in either 3881 or 3882. To be accepted for either option, students must have a 2.90 grade point average and 6 hours of prior work in history; they must submit a specific plan for the internship to the director of undergraduate studies. After completing the internship, all students must write a thorough report. Readings and a substantial interpretive essay on topics related to the internship training, under the supervision of a member of the Vanderbilt Department of History. Corequisite: 3880. [3] (No AXLE credit)

HIST3883 - Internship Research
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private agencies, institutions, and programs. In some cases, such as historical societies or museums, history is a central part of the organization's missions; in other cases, the student will play a role in managing the institution's records or writing its history. Two options are available. (1) full-time: 12-15 hours total, including 6-9 hours in 3880, 3 hours in 3882, and 3 hours in 3883. (2) Part-time: 6-9 hours total, including 3-6 hours in 3880 and 3 hours in either 3882 or 3883. To be accepted for either option, students must have a 2.90 grade point average and 6 hours of prior work in history; they must submit a specific plan for the internship to the director of undergraduate studies. After completing the internship, all students must write a thorough report. Students will write a substantial research paper under the supervision of a member of the Vanderbilt Department of History. Corequisite: 3880. [3] (No AXLE credit)

HIST3890 - Selected Topics in History
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

HIST3980W - Junior Honors Seminar in History
Course Description

The first semester of a three-semester sequence of honors study leading to the writing of an honors thesis in history. Introduction to historical thinking, research, and writing. Readings from the major fields of historical scholarship, representing the United States, Europe, Latin America, and Asia. Open to juniors beginning honors work in history, or to qualified history majors with the approval of the director of undergraduate studies. [3] (No AXLE credit)

HIST4444 - Project on Unity and American Democracy
Course Description

Special topics. Axle category may vary by department and topic. [3]

HIST4960 - Majors Seminar
Course Description

Advanced reading, research, and writing. Topics vary. Offered on a graded basis only. Limited to juniors and seniors and intended primarily for history majors. Prerequisite: 3000W or 3980W. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3; maximum of 6 credits total for all semesters of HIST 4960] (No AXLE credit)

HIST4980 - Senior Honors Research Seminar
Course Description

Presentation and discussion of drafts and chapters of honors theses in progress. Offered on a graded basis only. Open only to senior departmental honors students. [3] (No AXLE credit)

HIST4981 - Senior Honors Research Seminar
Course Description

Continuation of 4980. Offered on a graded basis only. Open only to seniors in the departmental honors program. Prerequisite: 4980. Corequisite: 4999. [3] (No AXLE credit)

HIST4999 - Senior Honors Thesis
Course Description

Writing an honors thesis under the supervision of a thesis adviser and the Director of Honors. Open only to seniors in the departmental honors program. Offered on a graded basis only. Prerequisite: 4980. Corequisite 4981. [3] (No AXLE credit)

History Of Art

HART1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

HART1100 - History of Western Art: Ancient to Medieval
Course Description

Visual and material culture of Europe and the Ancient Near East from the Paleolithic through the late Medieval period. Egypt, Greece, and Rome; early Christianity and Islam. Form, content, and meaning of works of art and architecture in their cultural context. [3] (HCA)

HART1105 - History of Western Art: Renaiss to Modern
Course Description

Major artistic movements from the Renaissance to the Modern era and the developments in painting, sculpture, and architecture. Works of specific artists and cultural factors that affect the visual arts from production to reception. [3] (HCA)

HART1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

HART1120 - History of Western Architecture
Course Description

Architecture in Europe, Western Asia, and North America from the early first millennium BCE to the present. Form and function; historical, social, and spatial contexts; architects and patrons. Not open to students who have earned credit for HART 1121 without permission. Total credit for this course and HART 1121 will not exceed 5 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (HCA)

HART1121 - History of Western Architecture I
Course Description

From prehistoric Europe and Western Asia to Renaissance Italy and the Ottoman Golden Age. Form and function; historical, social, spatial contexts; architects and patrons. Not open to students who have earned credit for HART 1120 without permission. Total credit for this course and HART 1120 will not exceed 5 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (HCA)

HART1122 - History of Western Architecture II
Course Description

From 1700 to the present; Piranesi, Wren, Viollet-le-Duc, Wright, and Venturi. Buildings, urban schemes, and landscapes in relation to aesthetic, cultural, social, and political contexts. Later reappraisals by historians and designers; relevance to contemporary practice and discourse. Not open to students who have earned credit for HART 1120 without permission. Total credit for this course and HART 1120 will not exceed 5 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (INT)

HART1200 - Arts of East Asia
Course Description

A survey of sculpture, painting, and architecture in China, Japan, and Korea. Historical, religious, philosophical, and cultural background. [3] (INT)

HART1205 - Arts of South and Southeast Asia
Course Description

Second millennium BCE to present. Formation of political and social identities as reflected in artistic productions. Development of artistic traditions in response to cultural exchange and political dynamics. [3] (INT)

HART1210W - Art and Ritual in Asia
Course Description

From prehistory to the present. Social and religious functions of the arts of China, India, Japan, Korea, and Himalayas. Select examples explored in museum visits, lectures, discussions, and varied writing projects. [3] (INT)

HART1220 - History of Asian Architecture
Course Description

Cultural traditions of Asia from the first millennium BCE to the nineteenth century through the study of architecture. Cities, temples, and domestic structures of China, Japan, Korea, South Asia (India and Pakistan), and Southeast Asia. [3] (INT)

HART1285W - Introduction to Medieval Art
Course Description

From the third to fifteenth century; Late Antique period to Late Gothic period. Architecture, sculpture, painting, and the minor arts of Western Europe in historical context, including Byzantine and Islamic art. Not open to students who have earned credit for HART 2285 without permission. Total credit for this course and HART 2285 will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (INT)

HART1300 - Monuments and Masterpieces
Course Description

The social and cultural history of the world in fourteen great works, including the Athenian Parthenon, the Pantheon in Rome, the Konjikido in Japan, Michelangelo's Sistine Chapel, and the U.S. Capitol. Sculpture, painting, architecture, and the decorative arts. [3] (INT)

HART1330W - Heaven on Earth: Sacred Sites in World History
Course Description

From prehistory to the 19th century. Great works of world religious architecture in their social and cultural context. Monuments, temples, tombs, shrines, and other sacred sites. Cross-cultural and trans-historical comparative perspective. How formal attributes of space and architecture shape religious experience and meaning. [3] (SBS)

HART1400 - U.S. Icons and Monuments
Course Description

From 1776 to present. How and why images of people, historical events, and symbols are revered. Implications for national identity, historical memory, consumerism, and political ideologies. The U.S. Capitol, Statue of Liberty, Mount Rushmore, Marilyn Monroe, and Michael Jordan. Not open to students who have earned credit for HART 1111 Section 13 without permission. Total credit for this course and HART 1111 Section 13 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (US)

HART1500W - Impressionism
Course Description

Painting style developed by Monet, Renoir, Pissarro, Cassatt, Morisot, and others, with emphasis on changing atmospheric effects. Work of the French Impressionists from formal, social, political, and intellectual perspectives. Impact of French Impressionism across Europe and North America. [3] (HCA)

HART1740W - Introduction to Design Studies
Course Description

Strategies for understanding the reciprocal relationship between design and human experience. Historical and contemporary examples in fields including fashion, climate change, violence, activism, and public health. Social control, nationalism, history and memory, and othering practices. [3] (HCA)

HART1750W - African American Arts
Course Description

Blackness and black culture as subject and context for African American visual arts from the 20th and 21st centuries. Emphasis on arts derived from African American cultural perspectives. Not open to students who have earned credit for HART 2750 without permission. Total credit for this course and HART 2750 will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (P)

HART2100 - Architecture and the Mapping of Empire in Asia
Course Description

Use of architecture to express and delimit empire in Asia from the 3rd century BCE through the 20th century CE. Cosmology in the construction of cities, temples, and tombs. Physical manifestations of divine kingship and royal divinities. Appropriation of ancient models to enhance legitimacy. Architecture as an expression of ethnic/state identities. [3] (P)

HART2110 - Arts of China
Course Description

Artistic production from the Neolithic period through the Qing dynasty in relation to religious and cultural contexts. [3] (HCA)

HART2120 - Arts of Korea
Course Description

History of Korean art and visual culture from ancient times to the present. Intersections of art, literature, religion, and politics, and cultural interactions with China and Japan. [3] (INT)

HART2130 - Arts of Japan
Course Description

Artistic production from the Neolithic through Meiji periods in relation to religious and cultural contexts. [3] (HCA)

HART2150 - East Asian Architecture and Gardens
Course Description

East Asian religious, vernacular, and garden architecture from the second century CE to the present. Influence of Buddhism on East Asian architecture, fengshui, and site selection, garden as religious landscape, Asia in modern architecture. [3] (HCA)

HART2151 - Architecture and Gardens in Imperial China
Course Description

Built environment of imperial China from the 2nd century BCE to the 19th century. City planning, palaces, temples, monasteries, gardens, and vernacular architecture; historical developments and regional variation. [3] (INT)

HART2160 - Art and Architecture of Buddhist Asia
Course Description

Appearance, creation, and function of Buddhist art works from South to East Asia. Iconographic and stylistic analysis of architecture, sculpture, painting, and other arts; relationship between ideology, text, and image; Buddhism and state formation. [3] (INT)

HART2165 - Modern and Contemporary Asian Art
Course Description

Arts of East, South, and Southeast Asia, 1800 to present, from the emergence of modernity to participation in the "global turn" in contemporary art. Painting, sculpture, architecture; new media including installation, performance, photography, film, and video. Social, political, and historical contexts. [3] (INT)

HART2170 - Religion and politics in South and Southeast Asian Art
Course Description

Use of Buddhist, Hindu, and Jain images as political communication in South and Southeast Asia from the time of Buddha (480-400 BC) to the present. The original patronage of temples and religious icons, and their reappropriation in ancient and modern times. [3] (INT)

HART2175 - Modern and Contemporary Indian Architecture
Course Description

From nineteenth-century British colonial rule to the present. Built environment of Indian subcontinent in local and global contexts. Eighteenth-century Jaipur and urban planning, the British Raj, Calcutta, Allahabad, and Edwin Lutyens' New Delhi. Le Corbusier, Louis Kahn, the Neo-Gothic of Bombay, and contemporary architecture. [3] (INT)

HART2180 - Islamic Art and Architecture
Course Description

Visual and building traditions from the seventh through twentieth centuries. Cultural, sacred, political, and historical forces shaping art from Islamic Spain and Turkey to Iran and India. Dome of the Rock, the Alhambra, the Suleymaniye mosque, Persian illustrated manuscripts, and the Taj Mahal. [3] (INT)

HART2192 - Modern and Contemporary African Art
Course Description

1940 to present. Painting, sculpture, photography, performance and film examined in relationship to political, cultural, historical, and aesthetic contexts on and off the African continent. Tradition, colonialism and post-colonialism, diaspora, nationalism, and gender. Issues regarding collecting, exhibiting, and selling contemporary African art. [3] (INT)

HART2200 - Cities of the Ancient Mediterranean World: Architecture & Built Environments
Course Description

Comparative studies around the Mediterranean and adjacent regions, 4th millennium BCE to 4th century CE. Origins and evolution; environmental, social, and economic determinants of urban form; city planning and amenities; engineering and architecture. Formal, material, comparative, and theoretical approaches. [3] (SBS)

HART2210 - Art and Architecture of Ancient Egypt
Course Description

Art, architecture, and culture of Egypt from the fourth millennium through the Old, Middle, and New Kingdoms. Sculpture, wall painting, architecture, and material culture. [3] (HCA)

HART2214 - Art and Architecture of the Ancient Americas
Course Description

Visual arts and built environments of indigenous South America, North America, and the Caribbean prior to European contact. Sacred, cultural, and historical influences on architecture and iconography. [3] (INT)

HART2220 - Greek Art and Architecture
Course Description

The Bronze Age, including the Minoans and Myceneans, through the Hellenistic period. The social and cultural contexts of material and visual culture. Vase-painting, sculpture, architecture, and more utilitarian artifacts. [3] (HCA)

HART2225 - Archaic and Classical Greek Art and Architecture, 1000 to 400 B.C.E.
Course Description

Sculpture, vase painting, architecture, and the minor arts. Formal and stylistic developments in relation to changing cultural background. [3] (HCA)

HART2230 - Late Classical Greek and Hellenistic Art and Architecture
Course Description

Sculpture, vase painting, architecture, and the minor arts from after the Parthenon to the Roman Empire. Media that developed significantly in this period, such as wall painting and mosaic. [3] (HCA)

HART2250 - Roman Art and Architecture
Course Description

Sculpture, architecture, and painting from the tenth century B.C.E. to the early fourth century C.E. Daily life of the Romans as seen in excavations of the towns of Pompeii and Herculaneum. [3] (HCA)

HART2260 - The Art of Pagans, Christians, and Jews
Course Description

Religious art of the Roman Empire in late antiquity. Visual art reflecting religious beliefs and practices. Greco-Roman cults, early Christianity, and Rabbinical Judaism. [3] (HCA)

HART2270 - Early Christian and Byzantine Art
Course Description

The development of architecture, sculpture, painting, and the minor arts from the third through eleventh centuries. [3] (HCA)

HART2275 - The Cross and the Crescent: Byzantine-Islamic Confluences in Art
Course Description

Developments at the interface of Byzantium and early Muslim empires, ca. 500-1000 C.E. Cross-cultural processes shaping visual sensibilities. Doctrinal issues and aniconism mirrored in architecture, ornament, mosaics, illuminated manuscripts, coinage. Exemplary sites: San Vitale in Ravenna, Hagia Sophia in Istanbul, Dome of the Rock in Jerusalem, and the Umayyad mosque in Damascus. [3] (INT)

HART2285 - Medieval Art
Course Description

The development of architecture, sculpture, painting, and the minor arts in Europe from the eleventh through the fifteenth centuries. Not open to students who have earned credit for HART 1285W without permission. Total credit for this course and HART 1285W will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (HCA)

HART2288 - Art of the Book
Course Description

Material and visual composition of medieval manuscripts; working with medieval and contemporary artists' books in Vanderbilt's Special Collections. Audience, changing popularity of texts and illustrations, and concerns of patrons and artists. Exemplary works include the "Book of Kells," "Luttrell Psalter," and "Tres Riches Heures." Offered on a graded basis only. [3] (HCA)

HART2290 - Gothic Paris
Course Description

From the twelfth to the fifteenth century. Architecture, sculpture, painting, and the luxury arts. [3] (INT)

HART2310 - Italian Art to 1500
Course Description

Early development of art and architecture primarily in central Italy from the late thirteenth through the fifteenth centuries. The works of Giotto, Duccio, Donatello, Masaccio, and Botticelli. The age of the Medici in Florence. Not open to students who have earned credit for HART 3320 or 3320W without permission. Total credit for this course and HART 3320 or 3320W will not exceed 4 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (HCA)

HART2320W - The Italian Renaissance Workshop
Course Description

Development of artists' shops, 14th into 16th century. Organization and production. Painting and sculpture techniques. Role of artists in society. Fra'Angelico, Andrea del Verrocchio and the young Leonardo da Vinci, and Sandro Botticelli. Firsthand study of works in the Kress Collection at Vanderbilt. Offered on a graded basis only. Not open to students who have earned credit for HART 3320W without permission. Total credit for this course and 3320W will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (HCA)

HART2325 - Great Masters of the Italian Renaissance
Course Description

From the late Gothic to the High Renaissance. Landmarks in painting, sculpture, and architecture in central Italy. Trecento Sienese masters; Giotto, Donatello, Botticelli, and Leonardo in Florence; and Michelangelo and Raffaello in Rome. Tempera and fresco technique; civic, ecclesiastic, and domestic buildings; and stylistic progression. [3] (INT)

HART2330 - Italian Renaissance Art after 1500
Course Description

High Renaissance and Mannerist art in sixteenth-century Italy, considering Florentine masters such as Leonardo, Michelangelo, and Pontormo, the Roman school of Raphael, and the Venetians from Giorgione and Titian to Tintoretto. [3] (HCA)

HART2340W - The Art of Venice
Course Description

Renaissance art in Venice and the Veneto during the 15th and 16th centuries. The Golden Age. Painters Bellini, Mantegna, Giorgione, Titian, Tintoretto; architecture of Palladio. Stylistic progression and the development of oil painting. The altarpiece, religious and mythological narrative, and role of portraiture. Context and meaning, civic, state, and ecclesiastical patronage, and consideration of audience. Offered on a graded basis only. [3] (HCA)

HART2342W - Venice: Between Land and Sea, Late Antiquity to Present
Course Description

Venetian history and visual and material culture from environmental and geographical perspectives. Late antiquity to present with emphasis on the early modern period. Art and architectural history, urbanism, cultural geography, environmental history. Engineering and water management; trade and colonialism; tourism and climate change. Offered on a graded basis only. [3] (SBS)

HART2360 - Northern Renaissance Art
Course Description

Painting, sculpture, and graphic arts in the Low Countries, France, and Germany from the end of the fourteenth century through the Reformation. Historical, social, religious, and stylistic factors. Not open to students who have earned credit for HART 2362 or 3366 without permission. Total credit for this course and HART 2362 will not exceed 4 credit hours. Total credit for this course and HART 3366 will not exceed 5 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (HCA)

HART2362 - Fifteenth-Century Northern European Art
Course Description

Painting, sculpture, prints, and court art in the Low Countries, France, and Germany. Historical, social, economic, religious, and technical analysis. Jan van Eyck, Rogier van der Weyden, and Hieronymus Bosch. Not open to students who have earned credit for HART 2360 without permission. Total credit for this course and 2360 will not exceed 4 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (HCA)

HART2390 - Seventeenth-Century Art
Course Description

European painting, sculpture, architecture, and graphic arts. Caravaggio, Bernini, Velazquez, Rubens, and Rembrandt. [3] (HCA)

HART2600 - Eighteenth-Century Art
Course Description

The history of European painting, sculpture, and printmaking from the Late Baroque era to the rise of Neoclassicism (1675-1775). Geographical focus on Italy and France. Artists include Maratti, Rusconi, Carriera, Tiepolo, Watteau, Chardin, Fragonard, and others. [3] (HCA)

HART2620 - Nineteenth-Century European Art
Course Description

French Revolution to the early twentieth century. International context for artistic movements. The rise of abstraction and the relationship between art, politics, and social change. [3] (INT)

HART2622 - Neoclassicism and Romanticism
Course Description

A survey of major artists and monuments of visual culture considered in their political, social, economic, spiritual, and aesthetic contexts from 1760 to 1840. [3] (HCA)

HART2625 - French Art in the Age of Impressionism
Course Description

French painting, sculpture, and drawing in its social, political, aesthetic, academic, and spiritual context from 1848 to 1886. The Social Realism of Daumier and Courbet; Manet and Aesthetic Realism; Monet, Renoir, Pissarro, Degas, Morisot, and Impressionism; and the rise of Neo- and Post-Impressionism with Seurat and van Gogh. [3] (INT)

HART2650 - Nineteenth-Century Architecture: Theory and Practice
Course Description

European and North American architecture from the French Revolution to the First World War. The relationships among architecture and technology, political regimes, social formations, and conceptions of history. Neoclassicism, Gothic Revival, Second Empire, the Arts-and-Crafts Movement, and Commercial Architecture. [3] (HCA)

HART2660 - American Art to 1865
Course Description

Painting and sculpture of the United States from Colonial times to 1865 with an emphasis on iconography, social history, race, and gender. [3] (US)

HART2662 - Art and the Environment in the United States
Course Description

Environmental concerns as conveyed through the visual arts, 1800 to present. Nature and the formation of national identity and empire; landscape painting, materials and ecology; land art and environment as medium; photography and the visualization of disaster. [3] (US)

HART2665 - The Vanderbilts as Patrons: Taste-Makers of Gilded-Age Art and Architecture
Course Description

The Vanderbilts' roles as patrons and taste-makers in translation of European architectural and artistic styles to the United States. Famed Vanderbilt estates such as Biltmore in Asheville, NC and the Breakers in Newport, RI. [3] (HCA)

HART2680 - British Art: Tudor to Victorian
Course Description

Art and visual culture in the British Isles from the reign of Henry VIII in the sixteenth century to Queen Victoria and the rise of the pre-Raphaelites in the nineteenth century. Portraiture and landscape painting, relationship between art and empire, rise of the Royal Academy, and patterns of patronage. Holbein, Hogarth, Gainsborough, Reynolds, Lawrence, and Turner. [3] (HCA)

HART2708 - Twentieth-Century British Art
Course Description

Painting, sculpture, installation, film and video, and performance in the context of national culture and political history. [3] (HCA)

HART2710 - Twentieth-Century European Art
Course Description

Painting, sculpture, and architecture; stressing a social-historical approach to the study of style. [3] (HCA)

HART2720 - Modern Architecture
Course Description

A survey of nineteenth-century styles from Federal to Victorian, and major twentieth-century architects and designers from Wright and the Bauhaus to Eames and Kahn. City planning and preservation. [3] (HCA)

HART2722 - Modern Art and Architecture in Paris
Course Description

Immersive study of major monuments and museums in central Paris, art capital of the Western world during the 19th-20th centuries. Paintings of Monet, Braque, and Magritte; architecture of Guimard and Nouvel. Visits to Musée d'Orsay, Centre Pompidou, Parc de la Villette, Musée Rodin, Villa Savoye. Offered on a graded basis only. [3] (HCA)

HART2740 - Modern Design
Course Description

From 1850 to present. How thinkers shaped practice. Relationships among modernity, modernism, and design. Historical debates over utopia, gender, social reform, inequality, and aura. Role in world's fairs, empire, fashion, international politics, domesticity. Close study of design exhibitions. [3] (HCA)

HART2750 - African American Art
Course Description

Colonial Era to the present. Artwork and artists in their political, cultural, social, historical, and aesthetic contexts. Relationship between race and representation. Not open to students who have earned credit for HART 1750W without permission. Total credit for this course and HART 1750W will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (P)

HART2755 - Women in Art since 1850
Course Description

Painting, sculpture, photography, and performance by European and American women artists. Intersections of gender, race, and sexuality in visual production. Feminist methods in art history. [3] (P)

HART2760 - Early American Modernism, 1865-1945
Course Description

Painting and sculpture of the United States between the Civil War and the Second World War with emphasis on iconography, social history, class, and gender. [3] (US)

HART2765 - Art since 1945
Course Description

A survey of art produced in the United States and Europe since 1945 with an emphasis upon theory and the social and intellectual factors. [3] (US)

HART2772 - Contemporary Art and Biennial Exhibitions
Course Description

From 1850 to present. Origins of world fairs, the Crystal Palace, Venice Biennale, and modern exhibitions. Core themes: Globalization of art, decolonized thinking and art making, the relation between locality and globality, and the commercialization of contemporary art. Offered on a graded basis only. [3] (P)

HART2775 - History of Prints
Course Description

Woodcut, engraving, etching, and lithography from the fifteenth to the twentieth century. Scientific, devotional, ornamental, and documentary functions. D√ºrer, Piranesi, Hogarth, Daumier, and Kollwitz. Advances in technique and marketing, relationship to fine art, and place in popular culture. [3] (HCA)

HART2780 - History of Western Urbanism
Course Description

Urban form and planning from antiquity to the present. The integration of architecture and landscape. Diachronic surveys. Case studies, including Nashville. [3] (P)

HART2782 - Storied Places: History of Landscape Design
Course Description

Landscape architecture as art form in Europe, Western Asia, and North America, from antiquity to the present. Stewardship and manipulation of land and water. Design of gardens and green spaces. Social and political meanings and messages. [3] (HCA)

HART2805 - Introduction to Museum Studies
Course Description

Fundamentals of museum history; diversity, theory, current practices, and ethics related to collecting and collection management, interpretation, and display. Global perspectivewith emphasis on Euro-American museums. Museums of Art, Anthropology, History, and Science. Includes site visits to local museums. [3] (P)

HART2808W - Contemporary Issues in Museums
Course Description

Current practices and controversies. Museum ethics, collection care, finances, and administration. Historical and contemporary global events and case studies. Guest speakers and site visits to local museums. Offered on a graded basis only. [3] (P)

HART2810W - Museum Exhibition
Course Description

Culture of museums and exhibition. Object handling, storage, and display. Ethics of exhibition including of objects from various cultures. Contextual presentation of art. May be repeated for credit once if there is no duplication in topic and not twice from the same instructor. Offered on a graded basis only. (Maximum of 6 credits total for all semesters of 2810W, 3810, and 3810W). [3] (P)

HART2815 - Digital Heritage: Methods and Practice
Course Description

Case-based introduction to digital applications in history of art and archaeology. Theory, research design, current methods of photogrammetry, 2D and 3D modeling, and immersive environments. Mapping and spatial analysis. Data management and digital publishing. May be repeated for credit with permission of the faculty. [3] (HCA)

HART2820 - Architectural Heritage: Research and Documentation
Course Description

Case-based. Immersive and collaborative analysis of buildings of architectural and historical importance. On-site survey, exploration, and archival investigation; consideration of design, function, renovation, and historic preservation. Offered on a graded basis only. May be repeated for credit with no duplication in content. [3] (US)

HART3112 - The Arts of China during the Liao-Song Period
Course Description

Art and architecture of China during the Liao-Song period from C.E. 907 to C.E. 1279. Political, religious, and aesthetic contexts. Influence of coastal trade and pilgrimage in transformations of painting, sculpture, ceramics, and architecture. [3] (INT)

HART3140 - Healing and Art in East Asia
Course Description

Influence of early healing practices on the development of the arts of East Asia. Magical healing texts, talismans, and tattoos; diagramming the body and the landscape; and the art of the Buddha of Medicine. Gardens and growing transformative herbs. Tea as medicine and art. Serves as repeat credit for HONS 1820W Section 28. [3] (HCA)

HART3164W - Art of Buddhist Relic and Reliquary
Course Description

From second century BCE to present. Relic veneration and construction of reliquaries from a visual perspective. Beautification, ritualization, use and abuse, and bodily issues spanning India, China, Korea, Japan, and Southeast Asia. [3] (INT)

HART3172 - Himalayan Art: Art of the Divine Abode
Course Description

Art of Nepal and Tibet from its inception to the present. Religious and cultural contexts. Initial western responses; Hindu and Buddhist art and architecture in Nepal; Tibetan Buddhist Art; artistic productions in the Tibetan diaspora; and souvenir art in Nepal. [3] (INT)

HART3173W - Art and Empire in India
Course Description

Art of India between the Mughal and British empires. Rise of colonialism and nationalism; cross-cultural encounters; and emergence of new institutions and technology. Offered on a graded basis only. [3] (P)

HART3174 - The South Asian Temple
Course Description

From its inception to the present. Morphological and stylistic analysis. Anthropological and ethnographical approach to temples as living communal entities. [3] (INT)

HART3224 - Greek Sculpture
Course Description

Style, materials, and techniques ca. 900-31 B.C. Sculptors' craft and their reasons for the creation of both free-standing and architectural sculpture. [3] (HCA)

HART3226 - Greek Vases and Society
Course Description

Ancient Greek vases as social documents. Interdisciplinary approaches, including historiographic, stylistic, semiotic, contextual, and scientific. Production, trade, and the functions of vases in funerary and ritual contexts, particularly the symposium. The development of black- and red-figure vase painting and iconography. [3] (HCA)

HART3228W - Gender and Sexuality in Greek Art
Course Description

Iconography of vase-painting and sculpture, from the Archaic through the Hellenistic periods. Visual constructions of bodies, poses, gestures, and dress, reflecting cultural attitudes towards courtship, marriage, rape, prostitution, and homosexuality. Emphasis on methodological approaches and comparisons with modern societies. Offered on a graded basis only. [3] (HCA)

HART3233 - Climate and Society: Drowning Cities
Course Description

Climate change, sea-level fluctuations, and floods from antiquity to the present. Science of climate, coasts, and rivers. Interdisciplinary analysis of urban form and history. Physical, social, technological, and aesthetic influences. Past, present, and future cities in Near East, Europe, Asia, and North America, including Nashville, New Orleans, and New York. Not open to students who completed 3333 or EES 3333 offered fall 2020. [3] (P)

HART3240W - Ancient Landscapes
Course Description

Greco-Roman attitudes toward nature. Exploitation and stewardship of resources. Country-house and garden design. Representations of mythological and sacred landscapes in painting and poetry. [3] (HCA)

HART3256W - Roman Architecture and Power
Course Description

Prestige building projects and architectural expressions of social, political, religious, and technological power in Rome and across its Empire. Public and private architecture; state institutions, infrastructure, and city dwellers; Romanization and resistance. Late antique transformations, modern legacies. [3] (HCA)

HART3272 - Portraits in Late Antiquity
Course Description

Social, political, and religious functions of portraits from the first century through the sixth century CE. Issues of representation, including the construction of identity, social status, mediation of presence through image, and what constitutes a likeness. Portraits as memorials, as objects of veneration, and idealized models. Influences on later portraiture. [3] (HCA)

HART3274 - Art and Empire from Constantine to Justinian
Course Description

An interdisciplinary study of Roman social, political, religious, and art historical developments in the fourth through sixth centuries CE. [3] (HCA)

HART3320 - Early Renaissance Florence
Course Description

Painting and sculpture in fifteenth-century Florence. Ghiberti, Donatello, Masaccio, Fra Angelico, and Botticelli. Stylistic progression; iconographic interpretation and meaning; the role of patronage and audience; and original physical and cultural context. The Italian Renaissance workshop. Not open to students who have earned credit for HART 2310 without permission. Total credit for this course and 2310 will not exceed 4 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Serves as repeat credit for HART 3320W. [3] (HCA)

HART3320W - Early Renaissance Florence
Course Description

Painting and sculpture in fifteenth-century Florence. Ghiberti, Donatello, Masaccio, Fra Angelico, and Botticelli. Stylistic progression, iconographic interpretation and meaning, the role of patronage and audience, original physical and cultural context, and the Italian Renaissance workshop. Offered on a graded basis only. Not open to students who have earned credit for HART 2310 without permission. Total credit for this course and HART 2310 will not exceed 4 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Serves as repeat credit for HART 3320. [3] (HCA)

HART3332 - Raphael and the Renaissance
Course Description

Art in Central Italy, ca. 1400-1520, with a focus on Rafaello Sanzio. His origin and artistic formation in Urbino and Perugia, early commissions in Florence, mature works and legacy in Rome. Predecessors Masaccio, Donatello, Piero della Francesca, and Pietro Perugino. Contemporaries Leonardo and Michelangelo. Taught on location in Italy. [3] (INT)

HART3334 - Michelangelo's Life and Works
Course Description

Sculpture, painting, architecture, and graphic works. Poetry and letters. Cultural, historical, religious, and political climate of his day. Influence upon artists. Critical reception. Repeat credit for students who have completed 3334W. [3] (HCA)

HART3334W - Michelangelo's Life and Works
Course Description

Sculpture, painting, architecture, and graphic works. Poetry and letters. Cultural, historical, religious, and political climate of his day. Influence upon artists. Critical reception. Repeat credit for students who have completed 3334. [3] (HCA)

HART3364W - The Court of Burgundy
Course Description

The visual arts of the Dukes of Burgundy (1363-1477) in cultural context. Portraiture, chivalry, costume, storytelling, and ceremony. Artists include Claus Sluter, Jan van Eyck, and Rogier van der Weyden. [3] (HCA)

HART3605W - French Art in the Age of Louis XV: From Rococo to Neoclassicism
Course Description

Court art and visual culture 1715 to 1775. Aesthetic development in painting, sculpture, interior design, and architecture. Watteau, Boucher, Fragonard, Falconet, Boffrand. Chinoiserie and exoticisms, porcelain industry at S√®vres, and domestication of royal spaces at Versailles. Women patrons such as Mme de Pompadour and Mme du Barry. Offered on a graded basis only. [3] (INT)

HART3610W - Art and Politics in Revolutionary and Napoleonic Europe, 1785-1830
Course Description

Art patronage, politics, and propaganda of the ancien r√©gime, French Revolution, reign of Napoleon Bonaparte, and Bourbon Restoration. French art policies on national patrimony, looting, and the confiscation of artworks; cultural centralization at the Mus√©e du Louvre. Painting, sculpture, printmaking, and decorative arts. David, Ingres, G√©rard, Canova, G√©ricault. Offered on a graded basis only. Not open to students who have completed HART 4960-01 offered spring 2019. [3] (HCA)

HART3712W - Surrealism
Course Description

20th- and 21st-century painting, sculpture, film, photography, and computer-generated and internet-based new media. Origins in France to international proliferation. Salvador Dal√≠, Ren√© Magritte, Luis Bu√±uel, Meret Oppenheim, and Frida Kahlo. Stylistic, thematic, and ideological issues in their historical and cultural context. [3] (HCA)

HART3718W - Twentieth-Century Mexican Art: Painting, Cinema, Literature
Course Description

From muralism to performance art. Relationship between artistic style and historical context. Analysis of ideological content. Rivera, Orozco, Kahlo, Modotti, Paz. Offered on a graded basis only. [3] (HCA)

HART3725W - The Skyscraper: Modern Urban Icon
Course Description

Development of the architectural type from the late 19th to the mid-20th century, seen from stylistic, technological, urban, artistic, and economic perspectives. [3] (HCA)

HART3730 - Twentieth-Century Sculpture
Course Description

Definitions, materials, movements, theories, and related practices, including architecture. [3] (HCA)

HART3735 - History of Photography
Course Description

Uses and meanings of photography from its invention (c. 1839) to the present. Ways of thinking about the medium and its status as a separate discipline in relation to the history of art. [3] (HCA)

HART3740 - History of Sound Art
Course Description

From twentieth century to present. Use of sound as artistic medium. Experimental practices; the relationship of art and technology; sound art's position between music, performance and installation art. Cage, Cardiff, Paik, Rosenfeld, and Trimpin. [3] (HCA)

HART3753W - Imaging the "Other" in Art
Course Description

Representations of racial difference in North America and Europe, 19th-21st centuries. Orientalism, colonialism, primitivism, anthropology, the use of racial and ethnic stereotypes, and the politics of display. [3] (HCA)

HART3757W - Women in Architecture
Course Description

Women's contributions to the built environment as architects, patrons, critics, and social reformers, primarily in the 19th and 20th centuries. Perspectives of feminism, gender, race, and sexuality studies. Julia Morgan, Eileen Gray, Charlotte Perriand, Denise Scott Brown, and Zaha Hadid. [3] (P)

HART3765W - Monuments and Memorials, 1900 to present
Course Description

Global memorialization practices in Europe, North America, and post-colonial settings. Memorials to Holocaust, civil rights movements, acts of terrorism. Monuments in and of multiple wars. Themes include counter-monuments, history and memory, and preservation. Offered on a graded basis only. [3] (HCA)

HART3766W - Post-1871 Berlin Monuments, Memorials, and City Planning
Course Description

Berlin's city planning; monuments and memorials from the beginning of the German Empire. Political, social, and cultural history, including World War II, the Holocaust, and the Cold War. Brandenburg Gate, Berlin Palace, Reichstag, Holocaust Memorial, Jewish Museum, and Berlin Wall. [3] (P)

HART3767W - Neo-Dada and Pop Art
Course Description

Artistic movements at the end of modernism and beginning of postmodernism, 1955-1980. Intersection with music, consumer culture, advertising, and economics. Jackson Pollock, Robert Rauschenberg, Jasper Johns, Andy Warhol, and Roy Lichtenstein. Issues of gender and sexuality through construction of femininity and masculinity. [3] (US)

HART3790 - Monumental Landscapes of Provence
Course Description

First millennium BCE to the present. Architecture and art, physical geography and natural resources in Mediterranean France. Greek-Gallic interactions, Roman urbanism, medieval institutions, and modern painting and design. Based in Aix-en-Provence and Marseille. [3] [HCA]

HART3810 - Exhibiting Historical Art
Course Description

Research and exhibition of art in the permanent collection of the Vanderbilt University Fine Arts Gallery. Research methods and principles of object organization and display, illustrated via selected objects that vary annually. May be repeated for credit once if there is no duplication in topic and not twice from the same instructor. Offered on a graded basis only. (Maximum of 6 credits total for all semesters of 3810 and 3810W). [3] (HCA)

HART3810W - Exhibiting Historical Art
Course Description

Research and exhibition of art in the permanent collection of the Vanderbilt University Fine Arts Gallery. Research methods and principles of object organization and display, illustrated via selected objects that vary annually. May be repeated for credit once if there is no duplication in topic and not twice from the same instructor. Offered on a graded basis only. (Maximum of 6 credits total for all semesters of 3810 and 3810W). [3] (HCA)

HART3825W - Meaning and Form in Architecture
Course Description

Human-made environment in various cultural contexts; historical and theoretical perspectives. Diverse approaches and methodologies for addressing formalism in architecture and the visual arts. [3] (P)

HART3840 - Directed Study
Course Description

Registration only with agreement of instructor involved and with written approval of the director of undergraduate studies. May be repeated for a total of 6 credits, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of HART 3840] (No AXLE credit)

HART3850 - Independent Research
Course Description

Supervised work in extension of regular offerings in the curriculum. Registration only with agreement of instructor involved and with written approval of the director of undergraduate studies. May be repeated for a total of 6 credits, but students may earn only up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

HART3880 - Internship Training
Course Description

Students gain experience in a broad range of arts-related programs, at public or private institutions, including museums, and/or federal agencies. Students may take 1-3 hours in 3883, which includes background research, done concurrently with a one-semester internship program (3880), leading to submission of a research paper at the end of that semester. A 3.0 grade point average, approval of a specific plan by the department, and at least 6 hours of prior work in History of Art is required. Offered only on a pass/fail basis only and must be taken concurrently with 3883. Will not count as part of the minimum hours for the History of Art major or minor. Corequisite: 3883. [Variable credit: 1-9] (No AXLE credit).

HART3883 - Internship Research
Course Description

Students gain experience in a broad range of arts-related programs, at public or private institutions, including museums, and/or federal agencies. Students may take 1-3 hours in 3883, which includes background research, done concurrently with a one-semester internship program (3880), leading to submission of a research paper at the end of that semester. A 3.0 grade point average, approval of a specific plan by the department, and at least 6 hours of prior work in History of Art is required. Readings and critiqued assignments under faculty supervision. Will not count as part of the minimum hours for the History of Art major or minor. Corequisite: 3880. [Variable credit: 1-3] (No AXLE credit).

HART3890 - Selected Topics
Course Description

May be repeated for credit twice if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3; maximum of 9 credits total for all semesters of HART 3890] (No AXLE credit)

HART4960 - Advanced Seminar
Course Description

An undergraduate seminar involving advanced In-depth reading, research, and writing in a particular area of art history. Limited to juniors and seniors with preference to majors. May be repeated for credit once if there is no duplication in topic and not twice from the same instructor. Students may enroll in more than one section of this course each semester. Offered on a graded basis only. [3; maximum of 6 credits total for all semesters of 295; maximum of 9 credits for HART Honors candidates] (HCA)

HART4998 - Honors Research
Course Description

Research to be done in consultation with a member of the faculty in history of art. Open only to those beginning honors work in history of art. May be repeated for a total of 6 credits. [1-6; maximum of 6 credits total for all semesters of HART 4998] (No AXLE credit)

HART4999 - Honors Thesis
Course Description

Open only to seniors in the departmental honors program. Students completing this course with distinction, including a thesis and final examination, will earn honors in history of art. Prerequisite: 4998. May be repeated for a total of 6 credits. [1-6; maximum of 6 credits total for all semesters of HART 4999] (No AXLE credit)

Honors

HONS1810W - College Honors Seminar in the Humanities and Creative Arts
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3] (HCA)

HONS1820W - College Perspectives Honors Seminar
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3] (P)

HONS1830W - College Honors Seminar in Behavioral and Social Sciences
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3] (SBS)

HONS1840W - College Honors Seminar in History and Culture of the United States
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3] (US)

HONS1850W - College Honors Seminar in Mathematics and Natural Science
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3] (MNS)

HONS1860W - College Honors Seminar in International Cultures
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3] (INT)

Human & Organizational Development

HOD1001 - Commons iSeminar
Course Description

Commons iSeminar, a 1-hour small seminar experience, open to first-year students. Students and faculty will collaboratively explore a specialized topic in depth in this university-wide seminar sponsored by The Ingram Commons. General Elective credit only. [1]

HOD1115 - First-Year Seminar
Course Description

Selected Topics for first-year students [3]

HOD1250 - Applied Human Development
Course Description

Introduction to the processes of human development and how such development can be influenced. Emphasis is placed on social development and implications for solving personal and professional problems. The course focuses on late adolescent and young adult development. [3]

HOD1300 - Small Group Behavior
Course Description

Designed to improve the student's ability to analyze behavioral patterns in groups such as leadership, conflict, and decision making and group roles. The student is expected to improve his/her abilities by effective participation in the group as well as in written analyses. Problems for analysis are drawn from events in the group and from theoretical readings. [3]

HOD2100 - Understanding Organizations
Course Description

Organizations are comprised of individuals with diverse interests functioning within rapidly changing, complex environments, often with limited resources. Accordingly, understanding organizations requires multiple perspectives and approaches to problem-solving. Students in the course will learn to apply organizational theories to specific challenges in order to generate potential solutions that promote organizational health. HOD 2100 can substitute for BUS 1400 in the business minor. Serves as repeat credit for BUS 1400. [3]

HOD2260 - Economics of Human Resources
Course Description

An introduction to economics, with heavy emphasis on microeconomics of the family, household, consumer, and business firm. Applications to the economics of government, poverty, discrimination, labor markets, the environment, education, and other human resource and human development topics will be included. The class will be primarily lecture format with some small group interactions and discussions. Prerequisite - Statistics Course: PSY-PC 2110, PSY 2100, ECON 1500, MATH 2810 or MATH 2820. [3]

HOD2400 - Talent Management and Organizational Fit
Course Description

The course provides a general overview of social, economic, and other environmental factors impacting the world of work and helps students in understanding how organizations are responding to this changing landscape. The course also enables students to critically engage this context by developing competencies and skills which will be applicable in a diversity of settings. [3]

HOD2500 - Systematic Inquiry
Course Description

This course offers an introduction to social science research methods covering qualitative and quantitative approaches. Students will develop the ability to critically analyze research studies as well as collaborate with others to conduct studies of their own, reporting their results in a professional format. [3]

HOD2600 - Continuous Improvement in Organizations
Course Description

Whether your future work is in a startup or a multinational corporation, a for-profit or non-profit organization, or a job that makes things or develops people, the tools of continuous improvement can help you push your organization beyond the status quo. Successful organizations look to what they can improve upon to better meet their organizational goals and improve performance. In this course, you will learn and apply methods of continuous improvement (e.g., Kaizen, Lean, and Improvement Science), including the Plan, Do, Check (or Study), Act cycles to improve organizational processes and practices. Students will both individually and collaboratively apply these methods to case studies as well as to personal and organizational aspects that they want to improve. Pre-requisite: HOD 2500 [3]

HOD2700 - Public Policy
Course Description

An exploration of the creation, interpretation, implementation, and evaluation of public policy in the United States. Main emphases include key analytical/theoretical perspectives necessary for understanding the policy making process (problem Identification, agenda setting, formulation, adoption, Implementation, and evaluation), and main factors that influence policy making at the national and state levels. Particular attention is paid to the development of student analytic and writing skills. [3]

HOD3200 - Introduction to Data Science
Course Description

Provides students with both theoretical and practical knowledge of data science, including accessing data, analyzing data, and presenting data analysis. Data access topics include web scraping, using application programming interfaces and database queries. Data analysis topics include linear regression, logistic regression, and basics of unsupervised machine learning. Data analysis will also cover cross validation. Data presentation topics include univariate and bivariate graphs, lattice graphing, mapping and interactive graphics. Emphasizes literate programming as basis for access, analysis and presentation. Prerequisite: Introductory Statistics or permission of instructor. [3]

HOD3250 - Causal Inference
Course Description

The purpose of this course is to prepare participants to design and carry out social science research estimating the effects of educational interventions, programs and policies that is sufficiently credible to influence decisions about these educational practices and for publication in scholarly, social science journals including education and public policy. A second purpose is to enable participants to fairly and rigorously evaluate the contributions and limitations of empirical social science manuscripts that address significant causal questions for education practice and policymaking. The course will develop your understanding of the theoretical constructs that underlie causal inference, contribute to your understanding of some aspects of descriptive social science, and aid you in the development of appropriate criteria for assessing the contributions of particular studies to social science research literature. Prerequisites: HODE 3205 (or equivalent), PSY-PC 2115 (or equivalent), and PSY-PC 3735 (or equivalent) and permission of instructor. [3]

HOD3275 - Practical Meta-analysis
Course Description

The topics covered in this seminar will include the major steps involved in conducting meta-analysis, with particular emphasis on the technical issues and statistical analyses distinctive to this form of research. Specifically, the course will focus on providing students with the skills needed to be intelligent consumers of systematic reviews and meta-analyses: conduct a systematic, replicable search of the literature used to identify studies eligible for a meta-analysis; create and analyze meta-analytic databases using appropriate statistical techniques; and prepare written reports of meta analytic findings. Prerequisites: PSY-PC 2110 and PSY-PC 3735 [3]

HOD3300 - Judgment and Analytical Reasoning
Course Description

This course presents the cognitive, emotional, and contextual factors that affect judgment and decision-making. Through real-world examples, students will learn to identify common errors in human reasoning and develop an understanding of a variety of analytic strategies to overcome them. The primary tool for conducting these analyses will be Microsoft Excel. (Developing proficiency in Excel for analysis and reporting findings is a secondary goal of this course.) Features and functions of Excel will be taught in the context of the course content and third-party validation of Excel skills will be obtained through Microsoft Certification at the Basic and Expert levels. Serves as repeat credit for HOD 3890-01 in Fall 2018 and for HOD 3890-02 in Spring 2019. [3]

HOD3850 - Independent Study in Human and Organizational Development
Course Description

Individual programs of reading or the conduct of Research studies in human and organizational development. Consent of supervising faculty member required. May be repeated. [1-3]

HOD3860 - Directed Research
Course Description

Consent of supervising faculty member required. May be repeated. [1-3]

HOD3864 - Research Experience
Course Description

This course provides undergraduate students in HOD direct experience in conducting research. The course is designed for students interested in going on to graduate school as well as students who want to gain experience in generating knowledge in an information economy. The course conducts a review of research methodologies and requires students to critically read and deconstruct published research studies. Data analysis skills are sharpened in the computer lab and put into practice on their own research. Students conduct several independent research projects during the semester. Prerequisite: HOD 2500 and a statistics class. [3]

HOD3870 - Practicum in Human and Organizational Development
Course Description

An intensive practicum experience. Three contact hours per week required for each credit hour. [1-3]

HOD3890 - Special Topics in Human and Organizational Development
Course Description

Exploration of special issues on topics related to human and organizational development. May be repeated for credit with change of topic. [1-3]

HOD4949 - Capstone Design
Course Description

Students partner with the HOD Capstone team and campus resources to explore, develop, and implement a successful capstone design process. The Capstone Design process requires students to engage in content, accomplish learning objectives, and meet deadlines. Students who successfully meet the learning objectives and demonstrate readiness will be confirmed for the HOD capstone semester. Corequisites or Prerequisites: HOD 1250, 1300, 2100, 2500, 2700, and 2400 (2400 is only required if on HOD Track structure) [0].

HOD4950 - Capstone Partnership
Course Description

Students complete an immersive learning experience with an organization, collecting field notes and observations, conducting informational interviews and internal research, and completing workplace duties as assigned. Prerequisite: HOD 1250, 1300, 2100, 2400, 2500, 2700, and 4949. Corequisite: HOD 4951, 4952, 4953 [3-6]

HOD4951 - Critical Reflexivity and Systems Thinking
Course Description

Students develop skills in critical reflection using a case study model to process and analyze workplace behavior using theories from earlier coursework. Students demonstrate engagement with capstone site stakeholders, visually diagram the different parts of the systems that interact internally and externally with the capstone site, and clearly define the relationships between the different parts of their capstone and the systems they impact. Prerequisite: HOD 1250, 1300, 2100, 2400, 2500, 2700, and 4949 (2400 required only if on HOD Track structure). Corequisite: HOD 4950, 4952, 4953 [3]

HOD4952 - Mapping Future Personal and Professional Development
Course Description

Students use research tools and personal development strategies to identify future goals and map next steps in their academic and professional journey. The course reflection is built upon retrospectives developed from each of the HOD core courses. Students use the material in their retrospectives and personal learning goal reflections to map their professional and personal future. Prerequisite: HOD 1250, 1300, 2100, 2400, 2500, 2700, and 4949 (2400 required only if on HOD Track structure). Corequisite: HOD 4950, 4951, 4953 3 [3]

HOD4953 - Analysis and Contribution
Course Description

Students use methods from human centered design to analyze key factors impacting organization and develop a project-centered contribution to capstone site. Prerequisite: HOD 1250, 1300, 2100, 2400, 2500, 2700, and 4949 (2400 required only if on HOD Track structure). Corequisite: HOD 4950, 4951, 4952 [3]

HOD4978 - Senior Thesis
Course Description

Senior Thesis [3]

HOD4980 - Human and Organizational Development Honors Seminar
Course Description

Open to students majoring in Human and Organizational Development who are admitted to the Honors Program. [3]

HOD4987 - Human and Organizational Development Honors Seminar
Course Description

Open to students majoring in Human and Organizational Development who are admitted to the Honors Program. Course carries writing requirement credit for Peabody students. [3]

Humanities

HUM1610 - Selected Topics
Course Description

Topics Vary. May be repeated more than once if there is no duplication of topic. [3] (No AXLE credit)

Humanities Education-PC

HMED2250 - Introduction to Arts Education
Course Description

Acquaints the student with the philosophical and pedagogical base with which to develop competence in teaching the arts. [2]

HMED3850 - Independent Study in Humanities Education
Course Description

Semi-independent study on selected topics in humanities education. May be repeated. Consent of faculty supervisor required. [1-3]

HMED3890 - Special Topics in Humanities Education
Course Description

Explores special topics related to humanities education. May be repeated with change of topic. [1-3]

Immersion Vanderbilt

IMM2100 - Introduction to Law (Law Immersion I)
Course Description

This course provides students with a basic foundation in American law, the legal system, and legal authority to prepare them for law-related experiential and research experiences. [2]

IMM2200 - Introduction to Law II (Law Immersion II)
Course Description

This course provides students with a basic foundation in legal reasoning, research, and writing to prepare them to draft structured memoranda explaining law and policy. Open to sophomores and juniors who have completed IMM 2100 Introduction to Law I and are pursuing a Law Immersion plan. [2]

Interdisciplinary Studies

INDS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

INDS1599 - Spectatorship and Performance Cultures in the UK and Ireland
Course Description

Maymester abroad. Spectatorship as a cultural practice; attendance at contemporary plays, musicals, sporting events, heritage sites, and site-specific performances. [3] (P)

INDS3831 - Global Citizenship and Service
Course Description

This course is offered by the Vanderbilt Initiative for Scholarship and Engagement (VISAGE). Graduate students may take this course for graduate credit. A service-learning course introducing students to themes and interpretations of global citizenship. Intended to be followed by 3832. [3] (INT)

INDS3832 - Global Community Service
Course Description

This course is offered by the Vanderbilt Initiative for Scholarship and Engagement (VISAGE). Graduate students may take this course for graduate credit. Students will design and conduct research projects in collaboration with faculty mentors. Prerequisite: 3831. [1-3] (No AXLE credit)

INDS3833 - Seminar in Global Citizenship and Service
Course Description

This course is offered by the Vanderbilt Initiative for Scholarship and Engagement (VISAGE). Graduate students may take this course for graduate credit. Project- and research-based seminar drawing on student experiences and learning in 3831 and 3832. Prerequisite: 3832. [3] (INT)

INDS3880 - Interdisciplinary Internship
Course Description

Internship credit for work approved by the designated Associate Dean of Arts and Science. A written scholarly project must be produced in the internship. Must be taken P/F. Repeatable twice for a maximum of 3 credit hours in 3880 (and 3884) combined. [1] (No AXLE credit)

INDS3884 - Interdisciplinary Internship
Course Description

Internship credit for summer work approved by the designated Associate Dean of Arts and Science. A written scholarly project must be produced in the internship. Course must be taken P/F. May be repeated for credit; maximum of 3 credit hours in 3881, 3882, 3883, and 3884 combined. [1] (No AXLE credit)

INDS3990 - Interdisciplinary internship Training
Course Description

Under faculty supervision students from any discipline can gain experience in a variety of public and private settings. Students must be classified as a sophomore or higher and in good academic standing at the time the credit is earned. Must be taken on a Pass/Fail basis. Prerequisite or co-requisite: 3991 [1-3] (No AXLE credit)

INDS3991 - Interdisciplinary Internship Readings and Research
Course Description

Under faculty supervision students from any discipline can gain experience in a variety of public and private settings. Students must be classified as a sophomore or higher and in good academic standing at the time the credit is earned. A thorough research paper or written report is required at the end of the semester. Must be taken on a graded basis only. [1-3] (No AXLE credit)

Italian

ITA1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

ITA1101 - Elementary Italian
Course Description

Introduction to reading, writing, and speaking through an exploration of Italian culture. For students who have studied little or no Italian. No credit for students who have earned credit for a more advanced Italian language course. [3] (No AXLE credit)

ITA1102 - Elementary Italian
Course Description

Study of the language through an exploration of Italian culture. No credit for students who have earned credit for a more advanced Italian language course. Prerequisite: 1101. [3] (INT)

ITA1103 - Intensive Elementary Italian
Course Description

One-semester intensive course for students who have some knowledge of Italian or of another romance language. No credit for students who have earned credit for 1101, 1102, or a more advanced Italian language course. [3] (INT)

ITA1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

ITA2203 - Intermediate Italian
Course Description

Life and art in the diverse regions of Italy through an integrated four-skills approach of reading, writing, listening and speaking. No credit for students who have earned credit for a more advanced Italian language course. Prerequisite: 1102 or 1103. [3] (INT)

ITA2501W - Grammar and Composition
Course Description

Syntax, idiomatic expressions, and current usage. Prerequisite: 2203. [3] (INT)

ITA2614 - Conversation
Course Description

Development of oral proficiency through analysis and discussion of films, magazine articles, and contemporary art and literature. Prerequisite: 2203. [3] (INT)

ITA2700 - Great Italian Works in English Translation
Course Description

Italian literature and culture from the Middle Ages to modernity. Founding of the Italian language through the "three crowns" of fourteenth-century Tuscany: Dante, Petrarch, and Boccaccio. Italian Renaissance and its European-wide repercussions disseminating humanist and historicist traditions. Risorgimento and nationhood. Michelangelo, Leonardo, Ariosto, Tasso, Vico, Leopardi, Calvino, Morante, Pasolini. [3] (INT)

ITA3000 - Introduction to Italian Literature
Course Description

Critical reading of major works of Italian literature from the beginning to the present. Prerequisite: 2501W. [3] (HCA)

ITA3041 - Italian Civilization
Course Description

The politics, intellectual, social, artistic, and economic history of Italy from 1300 to the present, with emphasis on major political and philosophical authors. Taught in English. [3] (INT)

ITA3100 - Literature from the Middle Ages to the Renaissance
Course Description

The ideas and forms of the Trecento, Quattrocento, and Cinquecento, as reflected in the philosophy, history, literature, and art history of these periods. Major writers and their influence on Western European literatures. Prerequisite: 2501W. [3] (HCA)

ITA3240 - Dante's Divine Comedy
Course Description

Dante's language and philosophical tenets through the study of style, characters, and themes. Taught in English. [3] (HCA)

ITA3242 - Dante in Historical Context
Course Description

Dante's philosophical and critical works in their medieval historical context and his influence in building a modern Western civilization. Knowledge of Italian not required. [3] (HCA)

ITA3340 - Famous Women from Antiquity to Renaissance
Course Description

Texts on famous women from Antiquity to the Renaissance in Latin, Italian, French, and English literature. Reception, contemporary criticism, and theory. Texts in English translation; taught in English. [3] (HCA)

ITA3500 - Baroque, Illuminismo, and Romanticism in Italy
Course Description

Literature of the seventeenth through nineteenth centuries, with particular reference to the influence of European literatures in Italy. Prerequisite: 2501W. [3] (HCA)

ITA3600 - Twentieth-Century Literature: Beauty and Chaos
Course Description

Poetry and prose in social and historical context. Prerequisite: 2501W. [3] (HCA)

ITA3601 - The City in Time and Space
Course Description

Functions, forms, and representations of the Italian city in different historical periods. Analysis of space and identity in Italy. Concepts and tools from urban studies to narrative and visual representations of the city. [3] (INT)

ITA3640 - Classic Italian Cinema
Course Description

From the 1910s to the 1970s. Selected works from Neorealism to Art Film. Relationship between cinema and the other arts. Contrasting film styles, including abstraction and realism, and tradition and transgression. Knowledge of Italian is not required. [3] (INT)

ITA3641 - Contemporary Italian Cinema
Course Description

From the 1970s to the present. Postmodern forays into metafiction, parody, and political and social critique. The return to realism and New Regionalism in the twenty-first century. Knowledge of Italian is not required. [3] (HCA)

ITA3642 - Italian Visual Culture
Course Description

Parallels between Italian literature and the visual arts, including painting, cinema, and intermediality. Focus on the representation of the visual arts in literature, the representation of literature in the visual arts, and Italy as the cradle of Western visual culture. Prerequisite: 2203. [3] (HCA)

ITA3701 - City Fictions
Course Description

Interdisciplinary exploration of how Italian authors, directors, and artists aspire to change the way readers and viewers understand and experience urban realities. Social, cultural, geographical, and architectural aspects of Italian cities as depicted in fiction, travel literature, cinematic images, the visual arts, and music. Prerequisite: 2203. [3] (P)

ITA3702 - Topics in Contemporary Italian Civilization
Course Description

Short stories, historical documents, and articles from the press. Prerequisite: 2501W. [3] (No AXLE credit)

ITA3703 - Italy: A World Cultures & Languages
Course Description

Diversity in Italian culture and language from earliest records to the present. Communicative aspects of contemporary Italian; improvement of phonetic skills and understanding of social, cultural, and linguistic aspects. Oral and written sources in standard and regional Italian, with a focus on mass media. Prerequisite: 2203. [3] (P)

ITA3704 - Made-in-Italy: Italianness in Italy and Abroad
Course Description

Cultural, historical, and economic analysis of Italian brands and products in Italy and the USA, and the aspects that determine their quality or representative mark. Fashion brands, design products, architectural styles, and popular music from local and global perspectives. Italian and American artistic and cinematic representations of Made-in-Italy. Taught in English. [3] (INT)

ITA3740 - Imaginaries of Italian migration in USA
Course Description

The history of Italian immigration in the United States. American representations of Italians and Italian-Americans from 1900 to the present. Cinematographic and literary images of Italians and Italian Americans. Historical and anthropological scholarship. Films, fiction, ethnic marketing, and travel writing. Knowledge of Italian is not required. [3] (US)

ITA3802 - Contemporary Italian Society and Culture
Course Description

Capitalism and modernization, immigration, and multiculturalism. Racism, youth culture, gender, sexuality, and feminism. Changing definitions of family. Regionalism, entertainment, and sport. Prerequisite: 2203. [3] (P)

ITA3803 - Mediterranean Culture (taught in Sicily and Italy)
Course Description

Culture and history of the Mediterranean. Taught in Sicily and the Italian peninsula. Knowledge of Italian is not required. [3] (HCA)

ITA3850 - Independent Study
Course Description

A reading course, the content of which varies according to the needs of the individual student. Primarily designed to cover pertinent material not otherwise available in the regular curriculum. May be repeated for a total of 12 credits over a four-semester period, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 12 credits total for four semesters of ITA 3850] (No AXLE credit)

ITA3890 - Special Topics in Italian Literature
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 2501W. [3] (No AXLE credit)

Japanese

JAPN1011 - Basic Japanese I
Course Description

Simple conversation, writing system, and reading. Designed exclusively for students with little or no previous exposure to Japanese. No credit for students who have earned credit for 1101 or a more advanced Japanese language course. [3] (No AXLE credit)

JAPN1012 - Basic Japanese II
Course Description

No credit for students who have earned credit for 1101 or a more advanced Japanese language course. Prerequisite: 1011. [3] (No AXLE credit)

JAPN1013 - Practical Japanese Conversation
Course Description

Conversational skills for everyday communication in actual Japanese cultural situations. Interpersonal and presentational speaking and listening proficiency. Prerequisite: 1012 or instructor permission. [2] (No Axle Credit)

JAPN1101 - Elementary Japanese I
Course Description

Acquisition of oral-aural skills and basic grammar. Introduction to reading and writing Japanese syllabaries and Chinese characters. No credit for students who have earned credit for 1012 or a more advanced Japanese language course. [4] (No AXLE credit)

JAPN1102 - Elementary Japanese II
Course Description

Two hours of lecture and three hours of drill per week. No credit for students who have earned credit for a more advanced Japanese language course. Prerequisite: 1012 or 1101. [5] (INT)

JAPN1231 - Tadoku: Extensive Reading in Japanese
Course Description

Develop reading skills in Modern Japanese, using extensive reading method. May be repeated once; students may earn up to 2 hours credit. Prerequisite: 1011 or 1101. [1] (No AXLE credit)

JAPN2201 - Intermediate Japanese I
Course Description

Development of conversational skills and linguistic competence. Syntax, writing, and reading. No credit for students who have earned credit for a more advanced Japanese language course. Prerequisite: 1102. [4] (INT)

JAPN2202 - Intermediate Japanese II
Course Description

No credit for students who have earned credit for a more advanced Japanese language course. Prerequisite: 2201. [4] (INT)

JAPN2232 - Japanese through Manga
Course Description

Reading and analysis of Japanese comic books. Language skills and knowledge of contemporary Japanese popular culture. Basic knowledge of hiragana and katakana required. [1] (No AXLE credit)

JAPN2233 - Language through Japanese Food Culture
Course Description

Oral and written language proficiency through the history, culture, and social issues related to traditional and contemporary Japanese food. [1-3] (No AXLE credit; INT when offered for 3 credit hours)

JAPN3301 - Advanced Japanese I
Course Description

Reading and writing in contemporary Japanese texts. Conversation, discussion, and development of pragmatic competence. No credit for students who have earned credit for a more advanced Japanese language course. Prerequisite: 2202. [3] (INT)

JAPN3302 - Advanced Japanese II
Course Description

No credit for students who have earned credit for a more advanced Japanese language course. Prerequisite: 3301. [3] (INT)

JAPN3302W - Advanced Japanese II
Course Description

Reading and writing essays in Japanese. Sophisticated vocabulary and grammatical construction through discussion and composition. No credit for students who have earned credit for a more advanced Japanese language course. Repeat credit for students who have earned credit for 3302. Prerequisite: 3301. [3] (INT)

JAPN3851 - Independent Study
Course Description

A reading course which may be repeated with variable content according to the needs of the individual student. Primarily designed to cover materials not otherwise available in the regular curriculum. May be repeated for a total of 12 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 12 credits total for all semesters of JAPN 3851 and 3852] (No AXLE credit)

JAPN3852 - Independent Study
Course Description

A reading course which may be repeated with variable content according to the needs of the individual student. Primarily designed to cover materials not otherwise available in the regular curriculum. May be repeated for a total of 12 credits in 3851 and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 12 credits total for all semesters of JAPN 3851 and 3852] (No AXLE credit)

JAPN3891 - Special Topics in Advanced Japanese
Course Description

Reading, writing, and discussion in authentic Japanese cultural, literary, and historical texts. Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3302. [3] (INT)

JAPN4401 - Readings in Japanese Literature
Course Description

Proficiency-oriented language approach. Interpretive, interpersonal, and presentational communication skills. Advanced vocabulary, kanji, grammar, and both casual and formal expressions in social situations and contexts. Offered on a graded basis only. Prerequisite: 3301. [3] (HCA)

Jewish Studies

JS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

JS1002 - Introduction to Jewish Studies
Course Description

Introduction to Judaism and Jewish history through philosophical, political, social, psychological, and artistic perspectives. Biblical studies; and culture, philosophy, and literature. Antiquity and the medieval world; modern and contemporary experience. Repeat credit for students who have completed 1002W. [3] (INT)

JS1002W - Introduction to Jewish Studies
Course Description

Introduction to Judaism and Jewish history through philosophical, political, social, psychological, and artistic perspectives. Biblical studies; culture, philosophy, and literature. Antiquity and the medieval world; modern and contemporary experience. Repeat credit for students who have completed 1002. [3] (INT)

JS1010 - Judaism: An Introduction
Course Description

Judaism from the ancient Near East to the present day. The Jewish life cycle. Varieties of Jewish practice throughout history. Interaction and dialogue with other religious communities, and the challenges posed by modernity in the wake of Jewish 'enlightenment' and political emancipation. [3] (INT)

JS1040 - Introduction to Modern Jewish History
Course Description

Meaning and origins of modern Jewish history from 1492. The diverse experiences of Jewish communities across the globe. Men's and women's redefinition of Jewish identity as they confronted modernity. Rise of secular rights for Jews but also of new forms of persecution. No credit for students who have earned credit for JS 1240. [3] (P)

JS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

JS1200 - Classical Judaism: Jews in Antiquity
Course Description

History of the Jewish people from biblical origins through the 2nd century CE. The Hellenistic Age, the Age of the Maccabees, Roman rule, and the rise of the Rabbis and Rabbinic literature. [3] (HCA)

JS1210 - The Bible as Literature/The Bible and Literature
Course Description

Hebrew Bible. Introduction to methods of reading; reception from antiquity to the present; and the Bible in literature. [3] (HCA)

JS1220 - Jews in the Medieval World
Course Description

Jewish experience from the 2nd century CE to 1492. Legal status of Jews; economic and religious developments. Burning the Talmud, age of charters, reaction to the Crusades, Jewish expulsion from Spain. [3] (INT)

JS2100 - The New Testament in Its Jewish Contexts
Course Description

Documents of the origin of Christianity and the social, literary, ideological, and theological contexts in which they emerged and which they reflect. Various critical methodologies employed in interpreting them. [3] (P)

JS2150 - Issues in Rabbinic Literature
Course Description

History of Rabbinic thought from its origins to the Middle Ages through the reading of central Rabbinic texts. Capital punishment, women in Rabbinic culture, sectarianism, and the power structures of Roman Palestine and Sasanian Babylonia. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3] (INT)

JS2210W - Hebrew Literature in Translation
Course Description

Origins and development in Eastern Europe from the nineteenth century to postmodern Israeli literature. The relationship between historical transformations and literary form. [3] (INT)

JS2215 - Modern Yiddish Literature in Translation
Course Description

Late nineteenth to mid-twentieth century. Diaspora, minority writing, gender, from shtetl to city, and the Holocaust. [3] (INT)

JS2220 - Israeli Culture through Film
Course Description

Cinematic representations of modern Israeli culture. Historical, social, and political aspects. Constructions of national identity. Treatments of war and conflict, ethnicity, gender, and Zionism. [3] (INT)

JS2230W - American Southern Jews in Life and Literature
Course Description

From colonial times to the present. Interactions between Southern Jews and other Southerners, and between Southern and Northern Jews. The Civil War, Jewish economic activities, and the civil rights movement. [3] (US)

JS2240W - Black-Jewish Relations in Post-War American Literature and Culture
Course Description

The historical relationship between African Americans and Jewish Americans and its portrayal in novels, short stories, and films by artists from both communities. [3] (US)

JS2250W - Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors
Course Description

Fiction and non-fiction produced by children of Holocaust survivors. [3] (HCA)

JS2255 - Creative Writing With Jewish Perspectives
Course Description

Creative writing course with readings as broad how-to guides. How Jewish and non-Jewish writers engage with or distance themselves from their their socio-ethnic/religious identity. Reading and writing in multiple genres including short stories, autobiography, poetry, plays, screenplays, and song lyrics. Exploration of different styles and techniques of writing, such as narrative voice and dialogue. [3] (HCA)

JS2260 - Coming of Age in Jewish Literature and Film
Course Description

The transition of young Jewish protagonists into adulthood as portrayed in literary works and films from Europe, Africa, and the Americas. Repeat credit for students who have completed 2260W. [3] (INT)

JS2260W - Coming of Age in Jewish Literature and Film
Course Description

The transition of young Jewish protagonists into adulthood as portrayed in literary works and films from Europe, Africa, and the Americas. Repeat credit for students who have completed 2260. [3] (INT)

JS2270 - Jewish Storytelling
Course Description

Twentieth-century short fiction and narrative traditions. The transition from religious to secular cultural forms. Immigration and ethnic literary forms. All works are in English or English translation from Yiddish, Hebrew, and Russian. Repeat credit for students who have completed 2270W. [3] (HCA)

JS2270W - Jewish Storytelling
Course Description

Twentieth-century short fiction and narrative traditions. The transition from religious to secular cultural forms. Immigration and ethnic literary forms. All works are in English or English translation from Yiddish, Hebrew, and Russian. Repeat credit for students who have completed 2270. [3] (HCA)

JS2280 - Jewish Humor
Course Description

The flowering of Jewish humor, especially in the U.S. during the twentieth century. Vaudeville, radio comedy, and the Golden Age of television. The careers and works of influential comics, writers and filmmakers, and the development of stand-up comedy. The effect of Talmudic disputes, Yiddish wordplay, and the history of Diaspora life upon secular Jewish comedians, essayists, playwrights, and fiction writers. Repeat credit for students who have completed 2280W. [3] (US)

JS2280W - Jewish Humor
Course Description

The flowering of Jewish humor, especially in the U.S. during the twentieth century. Vaudeville, radio comedy, and the Golden Age of television. The careers and works of influential comics, writers and filmmakers, and the development of stand-up comedy. The effect of Talmudic disputes, Yiddish wordplay, and the history of Diaspora life upon secular Jewish comedians, essayists, playwrights, and fiction writers. Repeat credit for students who have completed 2280. [3] (US)

JS2290W - Imagining the Alien: Jewish Science Fiction
Course Description

Science fiction and speculative fiction by Jewish writers in cultural context. Aliens, robots, and secret identities; time travel; utopia and political critique; questions of Jewish identity. [3] (HCA)

JS2300 - Modern Jewish Thought
Course Description

Jewish intellectual responses to major transformations of modernity. Impact of secularization, universalism, pluralism, nationalism, and gender theories on Jewish thought and identity. Conflicting perspectives of tradition, education, culture, and religion. Relationship between Israel and the diaspora. [3] (P)

JS2320 - Freud and Jewish Identity
Course Description

Analysis of rhetoric and themes in selected writings of Sigmund Freud and his times, development of assimilation and of anti-Semitic repudiation. [3] (SBS)

JS2330 - Is G-d Guilty? The Problem of Evil in Judaism
Course Description

Origin, nature, and representations of evil from Scripture through the Hasidic masters. Reflections of modern thinkers. [3] (HCA)

JS2340 - Jewish Philosophy after Auschwitz
Course Description

Critical responses to social and political institutions and the corresponding modes of thought that made Auschwitz possible and continue to sustain the barbarism that many leading philosophers have identified at the heart of culture. [3] (INT)

JS2400 - American Jewish Life
Course Description

Diversity, individualism, and change in Jewish life. Food and culture, memory and identity, gender and assimilation, Reform-Conservative-Orthodox culture wars. [3] (SBS)

JS2420W - American Jewish Songwriters
Course Description

From the late 19th Century to the present. Vaudeville, Tin Pan Alley, the development of the stage musical, and the Brill Building. Folk, rock, pop, and country. Contributions of Jewish songwriters to American music. [3] (US)

JS2440 - Jewish American Literature
Course Description

Nineteenth century to the present. Issues of race, gender, ethnicity, immigration, and diaspora. Offered on a graded basis only. [3] (HCA)

JS2450 - The Jewish Diaspora
Course Description

Changing Jewish communities, especially outside the United States and Israel, in macro-historical context. Post-communist European Jewish identity. New global diasporas and their relationship to the largest Jewish communities in Israel and the United States. [3] (INT)

JS2470 - Jews and the Left: A Global History
Course Description

Nineteenth- and twentieth-century Jewish history and leftist politics; Marxist ideology, Jewish society and culture in socialist states; Jewish participation in leftist political opposition movements throughout the capitalist world. [3] (INT)

JS2470W - Jews and the Left: A Global History
Course Description

Nineteenth- and twentieth-century Jewish history and leftist politics; Marxist ideology, Jewish society and culture in socialist states; Jewish participation in leftist political opposition movements throughout the capitalist world. [3] (INT)

JS2500 - Modern Israel
Course Description

Internal dynamics, debates, and conflicts within Israeli society. Political, social, and cultural transformations from the 1980s to the present. [3] (INT)

JS2520 - Zionism: Politics, Religion, and Ethnicity
Course Description

Tensions among religion, nationalism, and political activism. Translations of Messianism into a secular program. Criticism from within and without the movement. [3] (HCA)

JS2530W - Modern Israeli Culture
Course Description

Social and cultural history of modern Israel from the establishment of the State in 1948 to the present. Representations of national identity, collective belonging, and historical memory in public culture. Offered on a graded basis only. [3] (INT)

JS2540 - Power and Diplomacy in the Modern Middle East
Course Description

History of the Middle East in the 19th and 20th centuries with an emphasis on U.S. involvement after 1945. U.S. relationship with Israel, and its impact on the region. [3] (INT)

JS2560 - Social Movements in Modern Jewish Life
Course Description

How social movements shape contemporary American Jewish culture and politics. Explores movements internal to Judaism and those bringing religion into the public sphere. [3] (SBS)

JS2600 - Muslims and Jews
Course Description

Muslim-Jewish relations from the birth of Islam to the 21st century. The Quran and the Jews. Jews in the Islamic world. Jewish cultures and Islamic cultures. Jewish exodus from the Islamic world. Muslims in Israel today. ISIS and the Jews. Not open to students who have earned credit for JS 1111 section 11 without permission. Total credit hours for this course and JS 1111 section 11 will not exceed 3 credit hours. Credit hours reduced from most recent course taken (or from test or transfer credit) as appropriate. [3] (INT)

JS2620 - Jews in Egypt
Course Description

Jewish life and experience under Egyptian, Greek, Roman, and Muslim rule in Egypt from the Ptolemies to 1956. Jewish self-government, economic life, and culture over twenty-two centuries, through letters, documents, and imaginative literature. [3] (INT)

JS2640 - Jews and Greeks
Course Description

From the seventh century BCE to ca. 1500 CE. Sites of interaction, languages, cultural ties, religious tensions, political conflicts, and competing philosophies. Works by Elephantine, Alexander the Great, the Maccabees, the Septuagint, Aristeas, Josephus, Philo, the rabbis, the New Testament, Ezekiel the Tragedian, Byzantium. [3] (INT)

JS2640W - Jews and Greeks
Course Description

From the seventh century BCE to ca. 1500 CE. Sites of interaction, languages, cultural ties, religious tensions, political conflicts, and competing philosophies. Works by Elephantine, Alexander the Great, the Maccabees, the Septuagint, Aristeas, Josephus, Philo, the rabbis, the New Testament, Ezekiel the Tragedian, Byzantium. Serves as repeat credit for students who have earned credit for 2640. [3] (INT)

JS2700W - Judaism and Medicine
Course Description

Medicine, healing, health, and disease in Jewish text, history, ritual, literature, and lived experience. Jewish encounters with Jewish and gentile medical expertise, disability, aging, and death. Jewish approaches to problems in biomedical ethics. Intersection of health, Jewish identity, and sex and gender. [3] (P)

JS2710W - Jewish Sexual Ethics
Course Description

Critical readings of sex in Bible, Talmud, and Midrash in historical context. Analysis of ethical formation in representations of Jewish sexuality in modern western literature and film. Examination of and constructive response to present-day questions including queer rituals, sexual health, kink, and masturbation. [3] (HCA)

JS2995 - Antisemitism: A History
Course Description

Pre-history and history of modern anti-Jewish sentiments and actions from the Middle Ages to the present; focus on Europe and the United States. [3] (INT)

JS3000 - Major Themes in Jewish Studies
Course Description

The study of Jews, Judaism, and Jewish culture. History of Jewish Studies, core perspectives, key methodologies, critical debates. Classical literature, current trends. [3] (P)

JS3100 - The Holocaust
Course Description

The history of the Holocaust: its origins, development, and its legacy in the context of Germany and European history. [3] (INT)

JS3210 - Reading Across Boundaries: Jewish and Non-Jewish Texts
Course Description

Jewish and non-Jewish literary and historical texts studied in parallel so as to discover the differences between them. The course will consider texts from the ancient world to the early modern period and ask what constitutes Jewish writing and how it has been defined through time and geography. All readings will be in English. [3] (INT)

JS3333 - The Bible
Course Description

Jewish and Islamic biblical traditions. [3] (P)

JS3400W - Jerusalem
Course Description

historical significance of the city through texts, music, maps, architecture, and archaeology. Current conflicts and proposals for their resolution. Holy Places and their political significance. Pilgrimage and Jerusalem Syndrome. Offered on a graded basis only. [3] (INT)

JS3730 - The Roman to Medieval Near East: Caesarea Excavations, Israel
Course Description

From Herod the Great to the Mamluk conquest. Excavation of the site of Caesarea on the Mediterranean coast. Social, cultural, economic, and religious history. Maritime commerce; Roman rule; and the Christian, Jewish, and Muslim communities. Archaeological methods, geospatial analysis, and processing artifacts. Monumental architecture, urban topography, and littoral environment. Daily field and laboratory work with additional seminars and excursions. [3] (INT)

JS3830 - Contemporary Jewish Issues
Course Description

Projects will vary according to the instructor. Service to community will be integral part of course. [3] (No AXLE credit)

JS3840 - Directed Readings
Course Description

Advanced readings and research on a selected topic done under the supervision of a faculty mentor. [3] (No AXLE credit)

JS3850 - Independent Study
Course Description

A research project carried out under the supervision of a faculty mentor. May be repeated for a total of 6 credits if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of JS 3850] (No AXLE credit)

JS3880 - Internship Training
Course Description

Under faculty supervision, students gain experience in any of a variety of settings, such as community, municipal, or government agencies. A thorough report and research paper are required. Must be taken on a Pass/Fail basis only and must be taken concurrently with 3883. Corequisite: 3883. [Variable credit: 1-3] (No AXLE credit)

JS3883 - Internship Research
Course Description

Under faculty supervision, students gain experience in any of a variety of settings, such as community, municipal, or government agencies. A thorough report and research paper are required. Students will write a research paper drawing on their experiences in 3880. Corequisite: 3880. [3] (No AXLE credit)

JS3890 - Special Topics
Course Description

Topics as announced. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

JS3892 - Topics in Ancient and Medieval Jewish History
Course Description

From antiquity to 1492. Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

JS3894 - Topics in Modern Jewish History
Course Description

From 1492 to the present. Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

JS4301 - Jewish Language and Paleography
Course Description

Advanced study in a language of the Jewish people with a particular focus on the linguistic and paleographic features that define its cultural context. Each section focuses on one of the following languages: Aramaic, Ladino, Judaeo-Arabic, Rabbinic Hebrew, or Yiddish. May be repeated for credit up to two times when the language studied differs. Consent of instructor required. [3] (INT)

JS4960 - Senior Seminar
Course Description

Advanced reading and research in a particular area of Jewish studies. [3] (No AXLE credit)

JS4970 - Senior Project in Jewish Studies
Course Description

Readings and independent research. Prerequisite: senior standing. [3] (No AXLE credit)

JS4980 - Senior Honors Research Seminar
Course Description

Presentation and discussion of progress being made on honors theses. Open only to senior departmental honors students. [3] (No AXLE credit)

JS4981 - Senior Honors Research Seminar
Course Description

Presentation and discussion of progress being made on honors theses. Open only to senior departmental honors students. [3] (No AXLE credit)

K'iche' - Mayan Language

KICH1101 - Elementary K'iche' I
Course Description

Kaqchikel, K'iche', or Q'eqchi'. Basic speaking, reading, and writing skills. Offered on a graded basis only. Serves as repeat credit for students who have earned credit for ANTH 2612. [3] (No AXLE credit)

KICH1102 - Elementary K'iche' II
Course Description

Intermediate level course with advanced grammar. Counterfactual constructions, deixis, verbal derivations of positional roots, sound symbolic verbs, and verbal nominalizations. Vocabulary and idioms. Various literary genres. Serves as repeat credit for ANTH 2614. Offered on a graded basis only. Prerequisite: 1101 or ANTH 2612. [3] (INT)

KICH2201 - Intermediate K'iche' I
Course Description

Vocabulary, listening, and speaking skills. Modern and colonial texts. Cultural context of linguistic practices in K'iche' communities. Serves as repeat credit for ANTH 3614. Offered on a graded basis only. Prerequisite: 1102. [3] (INT)

KICH2202 - Intermediate K'iche' II
Course Description

Taught in K'iche'. Advanced vocabulary, grammar, syntax, reading, and writing. Colonial and modern texts. Serves as repeat credit for ANTH 3615. Offered on a graded basis only. Prerequisite: 2201 or ANTH 3614. [3] (INT)

Keyboard Harmony

MUKH1130 - Introductory Keyboard Harmony
Course Description

Introduction to repertoire, technique, transposition, harmonization, improvisation, and sight reading. Designed for B.Mus. and B.Mus.Arts students who have no piano background. Provides preparation for the Keyboard Harmony sequence. FALL. [1] Koutsoukos.

MUKH1131 - Keyboard Harmony I
Course Description

Development of basic technique, reading proficiency, elementary transposition. Diatonic harmony at the keyboard. Prerequisite: placement exam or MUKH 1130. Not open to students who have completed MUKH 2133 or 2134.

MUKH1132 - Keyboard Harmony II
Course Description

Development of basic technique, reading proficiency, elementary transposition. Diatonic harmony at the keyboard. Prerequisite: placement test or MUKH 1131. Not open to students who have completed MUKH 2133 or 2134. [1] Koutsoukos

MUKH1133 - Keyboard Harmony III
Course Description

Harmonization of melodies, improvisation of small musical forms, transposition in all keys with cadences and modulations, four-part score reading. Prerequisite: MUKH 1132. Strongly recommended: C- or above in 1132. Not open to students who have completed MUKH 2133 or 2134. [1] Koutsoukos.

MUKH1134 - Keyboard Harmony IV
Course Description

Harmonization of melodies, improvisation of small musical forms, transposition in all keys with cadences and modulations, four-part score reading. Prerequisite: MUKH 1133. Strongly recommended: C- or above in 1133. Not open to students who have completed MUKH 2133 or 2134. [1] Koutsoukos.

MUKH2133 - Accelerated Keyboard Harmony I
Course Description

Functional skills are reinforced with pedagogy, music theory, harmony, and ear training. Topics include improvisation, musical styles, and computer MIDI technology. For keyboard majors or by consent of instructor. Prerequisite: placement test. Not open to students who have completed MUKH 1131-1132 or 1133-1134. FALL. [2] Krieger.

MUKH2134 - Accelerated Keyboard Harmony II
Course Description

Intensive study of materials presented in MUKH 2133. Prerequisite: 2133. Strongly recommended: C- or above in 2133. Not open to students who have completed 1133, 1134. SPRING. [2] Krieger.

Korean

KOR1101 - Elementary Korean I
Course Description

Introduction to Korean language for students who have no previous knowledge of Korean. Basic skills in speaking, listening, reading, and writing, with a focus on oral proficiency. No credit for students who have earned credit for a more advanced Korean language course. [4] (No AXLE credit)

KOR1102 - Elementary Korean II
Course Description

Basic skills in speaking, listening, reading, and writing, with a focus on oral proficiency. No credit for students who have earned credit for a more advanced Korean language course. Prerequisite: 1101 [4] (INT)

KOR2201 - Intermediate Korean I
Course Description

Speaking, listening, reading, and writing, with intensive exercises for spelling, basic grammar, and vocabulary. Cultural aspects of daily life in Korea. No credit for students who have earned credit for a more advanced Korean language course. Prerequisite: 1102. [4] (INT)

KOR2202 - Intermediate Korean II
Course Description

Speaking, listening, reading, and writing, with intensive exercises for spelling, basic grammar, and vocabulary. Cultural aspects of daily life in Korea. No credit for students who have earned credit for a more advanced Korean language course. Prerequisite: 2201. [5] (INT)

KOR3301 - Advanced Korean I
Course Description

Emphasis on formal speaking and writing. Introduction of four-character idioms and basic Chinese characters. No credit for students who have earned credit for a more advanced Korean language course. Prerequisite: KOR 2202. [3] (INT)

KOR3302 - Advanced Korean II
Course Description

Emphasis on formal speaking and writing. Introduction of four-character idioms and basic Chinese characters. No credit for students who have earned credit for a more advanced Korean language course. Prerequisite: 3301. [3] (INT)

KOR3851 - Independent Study
Course Description

[1-3] (No AXLE credit)

KOR3852 - Independent Study
Course Description

[1-3] (No AXLE credit)

KOR4401 - Readings in Modern Korean I
Course Description

Authentic materials excerpted from cultural, literary, and business writings. Prerequisite: 3302. [3] (HCA)

KOR4402 - Readings in Modern Korean II
Course Description

Authentic materials excerpted from cultural, literary, and business writings. Prerequisite: 4401. [3] (HCA)

Latin

LAT1101 - Beginning Latin I
Course Description

Practice in speaking and writing. No credit for students who have earned credit for a more advanced Latin language course. Graded basis only. [3] (No AXLE credit)

LAT1102 - Beginning Latin II
Course Description

Transition to literary Latin. Emphasis on comprehension of texts. No credit for students who have earned credit for a more advanced Latin language course. Graded basis only. Prerequisite: 1101. [3] (INT)

LAT1103 - Intensive Elementary Latin
Course Description

The equivalent of Latin 1101 and 1102. This course presents the elements of the Latin language at an accelerated pace. Designed for students who have completed one or two years of Latin in high school but are not prepared to enter Latin 1102. No credit for students who have earned credit for 1101, 1102, or a more advanced Latin language course. [5] (INT)

LAT2201 - Intermediate Latin: Prose
Course Description

Review of Latin grammar and selected reading from major Latin authors. No credit for students who have earned credit for a more advanced Latin language course except 2202. [3] (INT)

LAT2202 - Intermediate Latin: Poetry
Course Description

Selected reading from the major Latin poets. No credit for students who have earned credit for a more advanced Latin language course. [3] (INT)

LAT3010 - The Writings of Caesar
Course Description

Selections from The Civil War and The Gallic War. Literary style and historical context. Prerequisite: 2202. [3] (HCA)

LAT3020 - Cicero and the Humanistic Tradition
Course Description

Study of Cicero's career and thought, and of his contribution to the development of the concept of humanitas. Readings from his letters, speeches, or philosophical works. Prerequisite: 2202. [3] (HCA)

LAT3030 - Latin Letters
Course Description

The literary letters of Seneca and Pliny, with a brief introduction to the personal correspondence of Cicero and the letters discovered at Vindolanda. Prerequisite: 2202. [3] (HCA)

LAT3040 - The Roman Historians
Course Description

Selections from Sallust, Livy, and Tacitus, with attention to their objectives and methods; analysis of Roman historiography and its relation to Greek and early Christian historiography. Prerequisite: 2202. [3] (HCA)

LAT3050 - Suetonius
Course Description

Selections from the works of one of Rome's most important biographers, read in the context of the Latin biographical tradition as well as the political and social background. Prerequisite: 2202. [3] (HCA)

LAT3060 - Tacitus
Course Description

Selections from the works of one of Rome's most important historians, read in the context of historiographical tradition and political and social background. Prerequisite: 2202. [3] (HCA)

LAT3070 - Sallust
Course Description

Selected works of one of Rome's most important historians, read in the context of historiographical tradition and political and social background. Prerequisite: LAT 2202. [3] (HCA)

LAT3100 - Roman Comedy
Course Description

Reading of selected comedies of Plautus and Terence: study of the form of Roman comedy and its relation to the Greek New Comedy. Prerequisite: 2202. [3] (HCA)

LAT3110 - Catullus
Course Description

Reading and interpretation of Catullus' poems; aesthetic, political, and rhetorical contexts; fundamentals of Latin meter. Prerequisite: 2202. [3] (HCA)

LAT3120 - Lucretius: De Rerum Natura
Course Description

Lucretius' poem studied both in the tradition of Epicurean philosophy and as a landmark in the development of the Latin didactic epic; background material in the fragments of Epicurus and some treatment of the Epicurean movement in Italy and especially in Rome. Prerequisite: 2202. [3] (HCA)

LAT3130 - Vergil: The Aeneid
Course Description

An intensive study of the entire poem, in the context of the epic tradition. Prerequisite: 2202. [3] (HCA)

LAT3140 - The Lyric Poetry of Horace
Course Description

Reading and interpretation of Horace's Epodes and Odes; relation to the Greco-Roman lyric tradition and to Augustan politics. Prerequisite: 2202. [3] (HCA)

LAT3150 - Latin Elegy
Course Description

Authors who created a new type of love poetry during the rule of emperor Augustus: Tibullus, Propertius, Ovid, and Sulpicia. Construction and contestation of gender roles; political contexts; development of the elegiac couplet; modern responses. Prerequisite: 2202. [3] (HCA)

LAT3160 - Ovid
Course Description

Reading and interpretation of selections from the Metamorphoses or other works of Ovid. Prerequisite: 2202. [3] (HCA)

LAT3170 - Roman Satire
Course Description

The satires of Horace and Juvenal; the origins of Roman satire; history and conventions of the genre; background reading in other Roman satirists. Prerequisite: 2202. [3] (HCA)

LAT3180 - Neronian Writers
Course Description

Selections from authors in the literary renaissance during the reign of the artistic Emperor Nero, including Seneca, Lucan, Persius, and Petronius. Stylistic innovations, literary merits, and cultural contexts. Prerequisite: 2202. [3] (HCA)

LAT3200 - Early Christian Writers
Course Description

Selections from the writings of Latin Christians, from the account of Perpetua's martyrdom to the Confessions of Augustine. Prerequisite: 2202. [3] (HCA)

LAT3300 - Ancient Conspiracy - Theory and Practice
Course Description

Selected works of two of Rome's most important historians, Livy and Sallust, and Cicero's speeches; Bacchanalian and Catilinarian conspiracies, read in the context of historiographical tradition and political and social background. Prior knowledge of intermediate Latin is expected. [3] (HCA)

LAT3850 - Independent Study
Course Description

Designed for majors wanting to familiarize themselves with works or authors not covered in the regular curriculum. Prerequisite: 6 hours above 2202. May be repeated for a total of 6 credits if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of LAT 3850] (No AXLE credit)

LAT3890 - Special Topics in Latin Literature
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

LAT5101 - Beginning Latin I
Course Description

Practice in speaking and writing. No credit for students who have earned credit for a more advanced Latin language course. Graded basis only. [3]

Latin American Studies

LAS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit.)

LAS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

LAS2101 - Introduction to Latin America
Course Description

A multidisciplinary survey of Latin America from pre-Columbian times to the present emphasizing culture, economic and political patterns, social issues, literature, and the arts in a historical perspective. [3] (INT)

LAS2102 - Brazil: Past, Present, and Future
Course Description

A multidisciplinary survey of Brazil from pre-Columbian times to the present. Culture, economic and political patterns, social issues, literature, and the arts in historical perspective. [3] (INT)

LAS2301 - Music of Protest and Social Change in Latin America
Course Description

Politics of musical culture. Music both as a marker of sociopolitical change and as an agent of political transformation. [3] (INT)

LAS2601 - Latin America, Latinos, and the United States
Course Description

Immigration of Latin American and Caribbean peoples to the United States and their experiences in this country. Required service work and a research project in the Nashville Latino community. [3] (P)

LAS3500 - History of Environmental Law in Latin America and the Caribbean
Course Description

Comparative perspective from Colonial Period to present. Creation of laws and their impact. How marginalized groups navigated and/or resisted laws. Agriculture, mining, land-ownership, climate change. [3] (INT)

LAS3851 - Independent Study
Course Description

A program of independent readings or research to be selected in consultation with the center's undergraduate adviser. Open only to juniors and seniors. May be repeated for a total of 12 credits in 3851 and 3852 combined over a four semester period, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 12 credits total for four semesters of LAS 3851 and 3852] (No AXLE credit)

LAS3852 - Independent Study
Course Description

A program of independent readings or research to be selected in consultation with the center's undergraduate adviser. Open only to juniors and seniors. May be repeated for a total of 12 credits in 3851 and 3852 combined over a four semester period, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 12 credits total for four semesters of LAS 3851 and 3852] (No AXLE credit)

LAS3880 - Internship Training
Course Description

Under faculty supervision, students gain experience working in a variety of settings, such as civic, corporate, cultural, government, health, media, political, research, and social welfare organizations in the United States and Latin America. Background reading and research will be completed in Latin American Studies 3881 concurrently with the completion of internship training, Latin American Studies 3880. A minimum of 3 hours of 3881 must be completed, independent of hours taken in 3880. Students may earn up to 6 hours of 3881 credit. A research paper and report must be submitted at the end of the semester during which the internship training is completed. A 2.90 grade point average, 6 hours of prior work in Latin American Studies, and prior approval of the director of undergraduate studies of the student's plans are required. Offered on a Pass/Fail basis only and must be taken concurrently with 3881. Hours of 3880 cannot be included in the minimum number of hours counted toward the Latin American Studies major or minor. Corequisite: 3881. [1-9] (No AXLE credit)

LAS3881 - Internship Readings and Research
Course Description

Under faculty supervision, students gain experience working in a variety of settings, such as civic, corporate, cultural, government, health, media, political, research, and social welfare organizations in the United States and Latin America. Background reading and research will be completed in Latin American Studies 3881 concurrently with the completion of internship training, Latin American Studies 3880. A minimum of 3 hours of 3881 must be completed, independent of hours taken in 3880. Students may earn up to 6 hours of 3881 credit. A research paper and report must be submitted at the end of the semester during which the internship training is completed. A 2.90 grade point average, 6 hours of prior work in Latin American Studies, and prior approval of the director of undergraduate studies of the student's plans are required. Corequisite: 3880. [3-6] (No AXLE credit)

LAS3891 - Special Topics in Latin American Studies
Course Description

Selected special topics suitable for interdisciplinary examination from the perspective of the social sciences and humanities. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

LAS4550 - Gender, Sexuality, and Family in Latin America
Course Description

Evolution of Latin American identity over time. [3] (INT)

LAS4901 - Research Seminar
Course Description

Selected topics for the interdisciplinary study of Latin America. [3] (No AXLE credit)

Latino and Latina Studies

LATS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

LATS1210 - Contemporary Chicanx Studies
Course Description

Historical, social, and political contexts of Chicanxs (Mexican Americans) in the U.S. Contemporary debates and future directions. Scholarship and creative writing related to Chicanx experience. [3] (HCA)

LATS2201 - Introduction to Latino and Latina Studies
Course Description

Foundational course for interdisciplinary study of Americans of Hispanic heritage and their communities. History and cultural production. Interconnections and differences among diverse Hispanic communities. [3] (P)

LATS3831 - Latino and Latina Business and Entrepreneurship
Course Description

Research on Nashville's growing Latino and Latina communities. Types of businesses and how they function. Issues affecting businesses within the communities. Work with local community leaders. A service learning course. [3] (SBS)

LATS3850 - Independent Study
Course Description

1-3 credits per semester; maximum of 12 credits total for fours semesters of LATS 3850. [1-3] (No AXLE credit)

LATS3880 - Internship Training
Course Description

Under faculty supervision, students can gain experience in a variety of settings relative to the Latinx experience. A research paper must be submitted. Normally, a 2.7 GPA, 6 hours of prior work in LATS, and prior approval of a specific plan by the director of the LATS program are required. [1-9] (No AXLE credit)

LATS3881 - Internship Readings and Research
Course Description

Under faculty supervision, students can gain internship experience relative to the Latinx experience. Hours earned based upon readings and research supervised by LATS faculty to lend intellectual foundation to the internship experience. A research paper must be submitted at the end of the semester during which the internship is completed. [3-6] (No AXLE credit)

LATS4961 - Latino and Latina Studies Seminar
Course Description

Overview of cultural production, history, and political and socioeconomic experiences of Hispanic people living in the United States. Synthesis of issues, traditions, approaches, and problems. [3] (HCA)

Malagasy

MALA1101 - Elementary Malagasy I (Duke)
Course Description

Malagasy language, spoken by 25 million people in Madagascar and the Comoro Islands. Speaking, listening, reading, and writing. [3] (No AXLE credit)

MALA1102 - Elementary Malagasy II (Duke)
Course Description

Continuation of 1101. Speaking, listening, reading, writing the Malagasy language, which is spoken by 25 million people in Madagascar and the Comoro Islands. [3] (INT)

MALA2201 - Intermediate Malagasy I (Duke)
Course Description

Content-based approach focusing on aspects of Malagasy culture and society, with emphasis on the study of authentic audio and written texts. Prerequisite: 1102. [3] (INT)

Materials Science & Engineering

MSE1500 - Materials Science I
Course Description

Concepts of materials science developed from an understanding of the atomic and molecular structure of materials and their relationship to the properties of matter. Mechanical, electrical, physical, chemical, and magnetic properties of metals, ceramics, organics, composites, and semiconductors are covered. Corequisite: MSE 1500L. SPRING. [3]

MSE1500L - Materials Science Laboratory
Course Description

Laboratory for MSE 1500. One three-hour laboratory per week. Corequisite: MSE 1500. SPRING. [1]

MSE2205 - Strength and Structure of Engineering Materials
Course Description

Laboratory supplement to CE 2205. Students conduct experiments on the strength behavior of materials and simple engineering structures. Includes: tension and bending, fasteners, photoelastic analysis of stress concentrators, strain gage instrumentation to determine principal stresses, bending and deflection curves for simple beams, loaded columns, and short struts. Corequisite: CE 2205. FALL. [1]

MSE2500 - Materials Science II
Course Description

Functional materials based on their electromagnetic, thermal and optical properties. Electrical and magnetic behavior of materials, semiconductivity, band gap engineering, nanostructures, and new materials, such as metamaterials. Case studies of devices found in modern vehicles, homes, communications systems, and computing devices. Prerequisite: MSE 1500. FALL. [3]

MSE3860 - Undergraduate Research
Course Description

Open to select engineering students to do research under the guidance of a faculty member. A formal written report is required. [1-3]

MSE3890 - Special Topics
Course Description

Technical elective courses of special current interest. No more than two semesters of this course may be credited to the student's record. Prerequisite: consent of instructor. [Variable credit: 1-3 each semester] (Offered on demand)

Math Education

MTED2200 - Mathematics for Elementary Teachers
Course Description

This course is the first of a sequence designed for those students seeking elementary licsensure with an emphasis on grades preK-3. The course deals with issues of both content and pedagogy that are relevant to these grades. The course is prerequisite to MTED 3250 and may be taken concurrent with MTED 3251. [3]

MTED2300 - Pedagogy Seminar
Course Description

This pedagogy seminar accompanies a core course in the College of Arts & Sciences and examines the process of teaching and learning of that course content. Students enrolled in the core course lecture may elect to participate in this accompanying one credit pedagogy seminar. This optional seminar will be team-taught by the core course instructor and an education faculty member. [1]

MTED3250 - Teaching Mathematics in Elementary Schools
Course Description

This course is the second in a sequence of courses designed for those students seeking elementary licensure with an emphasis on grades 2-5. This course deals with issues of both content and pedagogy that are relevant to these grades.This course may be taken concurrent with MTED 3251. Prerequisite: MTED 2200. [2]

MTED3251 - Practicum in Elementary Mathematics
Course Description

Field experiences providing students an opportunity to integrate and apply teaching skills developed in the elementary mathematics course. Students are placed in a local elementary school classroom and are given opportunities to engage in classroom observations, curriculum planning and implementation, and guided reflective practice. Corequisite: MTED 2200 or MTED 3250. May be taken only once. [1]

MTED3320 - Introduction to Literacies in Mathematics
Course Description

This course is intended for licensure candidates in secondary education for mathematics and for other students who want to explore the concepts and practices of disciplinary literacy that is the links between content and communication. [3]

MTED3360 - Computers, Teaching, and Mathematical Visualization
Course Description

Examining the 7-14 mathematics curriculum as a body of ideas that students can develop over time and the use of computer environments to support teaching and learning them. [3]

MTED3370 - Teaching Mathematics in Secondary Schools
Course Description

Study of conceptual structure, curriculum, objectives, instructional approaches, materials, learning theory, and philosophies of assessment as they relate to teaching mathematics in middle and secondary schools. Prerequisite: EDUC 3310 or consent of instructor. Corequisite: MTED 3371. [3]

MTED3371 - Professional Year Practicum
Course Description

Observation, participation, and teaching in middle school and secondary school settings. Corequisite: MTED 3370 [1-3]

MTED3850 - Independent Study in Mathematics Education
Course Description

Semi-independent study on selected topics in mathematics education. May be repeated. Consent of supervising instructor. [1-3]

MTED3890 - Special Topics in Mathematics Education
Course Description

Exploration of special topics related to mathematics education. May be repeated with change of topic. [1-3]

MTED4963 - Student Teaching Seminar: Secondary
Course Description

Seminar to accompany EDUC 4953. A $300.00 Teacher Performance Assessment fee is associated with this course. [3]

Mathematics

MATH1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

MATH1005 - Pre-calculus Mathematics
Course Description

Inequalities, functions and graphs, trigonometric identities, theory of equations. Designed for students who plan to take either 1200-1201 or 1300-1301 but need a stronger background in algebra and trigonometry. [3] (No AXLE credit)

MATH1010 - Probability and Statistical Inference
Course Description

For students not planning to major in science, engineering, or mathematics. Discrete and continuous probability models (exponential, binomial, Poisson, normal). Law of large numbers; conditional probability and Bayes theorem; counting techniques and combinatorics. Descriptive statistics: measures of central tendency and dispersion, histograms. [3] (No AXLE credit)

MATH1011 - Probability and Statistical Inference
Course Description

For students not planning to major in science, engineering, or mathematics. Linear regression, correlation, hypothesis testing. Confidence intervals, sampling distributions, statistical inference. Prerequisite: 1010. [3] (MNS)

MATH1100 - Survey of Calculus
Course Description

A basic course in the rudiments of analytic geometry and differential and integral calculus with emphasis on applications. Designed for students who do not plan further study in calculus. Not open to students who have earned credit for MATH 1200, 1201, or 1300 without permission. Total credit for this course and MATH 1200 will not exceed 4 credit hours; Total credit for this course and MATH 1300 will not exceed 5 credit hours; Total credit for this course and MATH 1201 will not exceed 6 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [4] (MNS)

MATH1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

MATH1200 - Single-Variable Calculus I
Course Description

Review of algebra and trigonometry. Exponential functions; inverse functions and logarithms. Limits; differentiation of algebraic and transcendental functions; rules of differentiation; related rates. Three hours of lecture and one hour of recitation period per week. Not open to students who have earned credit for MATH 1100 or 1300 without permission. Total credit for this course and MATH 1100 will not exceed 4 credit hours; Total credit for this course and MATH 1300 will not exceed 5 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (MNS)

MATH1201 - Single-Variable Calculus II
Course Description

Maximum and minimum values; curve sketching. Antiderivatives; the Fundamental Theorem of Calculus; areas and volumes; techniques of integration. Three hours of lecture and one hour of recitation period per week. Students who have earned credit for 1100 or 1301 will earn only two credits for this course. Not open to students who have earned credit for MATH 1100, 1300, or 1301 without permission. Total credit for this course and MATH 1100 or 1301 will not exceed 6 credit hours; Total credit for this course and MATH 1300 will not exceed 5 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1200. [3] (MNS)

MATH1300 - Accelerated Single-Variable Calculus I
Course Description

Functions, limits, differentiation of algebraic functions, integration, applications including extrema problems, areas, volumes, centroids, and work. Not open to students who have earned credit for MATH 1100, 1200, or 1201 without permission. Total credit for this course and MATH 1100, 1200, or 1201 will not exceed 5 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [4] (MNS)

MATH1301 - Accelerated Single-Variable Calculus II
Course Description

Differentiation and integration of transcendental functions, applications, methods of integration, coordinate geometry, polar coordinates, infinite series. Not open to students who have earned credit for MATH 1201 without permission. Total credit for this course and MATH 1201 will not exceed 6 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1300 or 1201. [4] (MNS)

MATH2300 - Multivariable Calculus
Course Description

Vectors, curves, and surfaces in space. Functions of several variables, partial derivatives, multiple integrals. Vector integral calculus, including line and surface integrals. Not open to students who have earned credit for MATH 2310, 2500, or 2501 without permission. Total credit for this course and MATH 2310 or 2501 will not exceed 4 credit hours; total credit for this course and MATH 2500 will not exceed 5 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1301 or 2200. [3] (MNS)

MATH2310 - Multivariable Calculus with Matrix Algebra
Course Description

Vectors and matrix operations. Linear transformations, dimension, and rank. Solutions of systems of linear equations. Eigenvalues and eigenvectors. Lines, planes, and subspaces. Limits, continuity, and the derivative of functions of several variables and vector-valued functions. Extremum and constrained optimization. Multiple integrals and change of variables. Applications to probability and statistics. Not open to students who have earned credit for MATH 2300, 2400, 2410, 2500, 2501, or 2600 without permission. Total credit for this course and MATH 2300, 2400, 2500, or 2501 will not exceed 4 credit hours; total credit for this course and MATH 2410 or 2600 will not exceed 6 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1301. [4] (MNS)

MATH2400 - Differential Equations with Linear Algebra
Course Description

Scalar differential equations, Laplace transforms, systems of differential equations. Gauss-elimination, algebra of matrices, determinants, vector spaces, linear operators, eigenvalues and eigenvectors. Intended for students in Biomedical Engineering, Electrical Engineering and Computer Engineering. Not open to students who have earned credit for MATH 2310, 2410, 2420, 2500, 2501, or 2610 without permission. Total credit for this course and MATH 2310, 2410, 2420, 2500, 2501, or 2610 will not exceed 4 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: 2300. [4] (No AXLE credit)

MATH2410 - Methods of Linear Algebra
Course Description

Vectors and matrix operations. Linear transformations and fundamental properties of finite dimensional vector spaces. Solutions of systems of linear equations. Eigenvalues and eigenvectors. Not open to students who have earned credit for MATH 2310, 2400, 2500, 2501, or 2600 without permission. Total credit for this course and MATH 2310 will not exceed 6 credit hours; total credit for this course and MATH 2400 or 2501 will not exceed 4 credit hours; total credit for this course and MATH 2500 will not exceed 5 credit hours; total credit for this course and MATH 2600 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: 2300. [3] (MNS)

MATH2420 - Methods of Ordinary Differential Equations
Course Description

Linear first-order differential equations, applications, higher order linear differential equations, complementary and particular solutions, applications, Laplace transform methods, series solutions, numerical techniques. Not open to students who have earned credit for MATH 2400 or 2610 without permission. Total credit for this course and MATH 2400 will not exceed 4 credit hours; total credit for this course and MATH 2610 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 2300, 2310, or 2501. [3] (MNS)

MATH2500 - Multivariable Calculus and Linear Algebra
Course Description

Vector algebra and geometry; linear transformations and matrix algebra. Real and complex vector spaces, systems of linear equations, inner product spaces. Functions of several variables and vector-valued functions: limits, continuity, the derivative. Extremum and nonlinear problems, manifolds. Multiple integrals, line and surface integrals, differential forms, integration on manifolds, theorems of Green, Gauss, and Stokes. Eigenvectors and eigenvalues. Emphasis on rigorous proofs. Not open to students who have earned credit for MATH 2300, 2310, 2400, 2410, or 2600 without permission. Total credit for this course and MATH 2300 or 2410 will not exceed 5 credit hours; total credit for this course and MATH 2310 or 2400 will not exceed 4 credit hours; total credit for this course and MATH 2600 will not exceed 6 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Open only to first-year students with a test score of 5 on the Calculus-BC Advanced Placement examination. [4] (MNS)

MATH2501 - Multivariable Calculus and Linear Algebra
Course Description

Continuation of 2500. Vector algebra and geometry; linear transformations and matrix algebra. Real and complex vector spaces, systems of linear equations, inner product spaces. Functions of several variables and vector-valued functions: limits, continuity, the derivative. Extremum and nonlinear problems, manifolds. Multiple integrals, line and surface integrals, differential forms, integration on manifolds, theorems of Green, Gauss, and Stokes. Eigenvectors and eigenvalues. Emphasis on rigorous proofs. Not open to students who have earned credit for MATH 2300, 2310, 2400, 2410, or 2600 without permission. Total credit for this course and MATH 2300, 2310, 2400, 2410, or 2600 will not exceed 4 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 2500 and first-year standing. [4] (MNS)

MATH2600 - Linear Algebra
Course Description

Algebra of matrices, real and complex vector spaces, linear transformations, and systems of linear equations. Eigenvalues, eigenvectors, inner product spaces, and orthonormal bases. Designed primarily for mathematics majors. Not open to students who have earned credit for MATH 2310, 2410, 2500, or 2501 without permission. Total credit for this course and MATH 2410 will not exceed 3 credit hours; total credit for this course and MATH 2310 or 2500 will not exceed 6 credit hours; total credit for this course and MATH 2500 will not exceed 5 credit hours; total credit for this course and MATH 2501 will not exceed 4 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: 2300 or 2310. [3] (MNS)

MATH2610 - Ordinary Differential Equations
Course Description

First- and second-order differential equations, applications. Matrix methods for linear systems; stability theory of autonomous systems; existence and uniqueness theory. Intended for mathematics and advanced science majors. Not open to students who have earned credit for MATH 2400 or 2420 without permission. Total credit for this course and MATH 2400 will not exceed 4 credit hours; total credit for this course and MATH 2420 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: concurrent enrollment in 2501; or prior credit for either 2501 or both 2300 or 2310 and either 2410 or 2600. [3] (MNS)

MATH2810 - Probability and Statistics for Engineering
Course Description

Discrete and continuous probability functions, cumulative distributions. Normal distribution. Poisson distribution and Poisson process. Conditional probability and Bayes' formula. Point estimation and interval estimation. Hypothesis testing. Covariance and correlation. Linear regression theory and the principle of least squares. Monte Carlo methods. Intended for students in Electrical Engineering and Computer Engineering. Not open to students who have earned credit for MATH 2820 without permission. Total credit for this course and MATH 2820 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 2300, 2310, or 2501. [3] (No AXLE credit)

MATH2820 - Introduction to Probability and Mathematical Statistics
Course Description

Discrete and continuous probability models, mathematical expectation, moment generating functions, and joint densities. Point estimation, confidence intervals, hypothesis testing, and applications. Students taking 2820 are encouraged to take 2820L concurrently. Not open to students who have earned credit for MATH 2810 without permission. Total credit for this course and MATH 2810 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 2300, 2310, or 2501. [3] (MNS)

MATH2820L - Statistics Laboratory
Course Description

Applications of the theory developed in 2820. Emphasis on data analysis and interpretation. Topics include the one- and two-sample problems, paired data, correlation and regression, chi-square, and model building. Pre- or corequisite: 2810 or 2820. [1] (No AXLE credit)

MATH2821 - Introduction to Applied Statistics
Course Description

Review of basic applied statistics. Analysis of variance as a technique for interpreting experimental data. Generalized likelihood ratio principle, confounding, multiple comparisons, introduction to response surface methodology, and nonparameteric methods. Experimental designs: completely randomized, nested, orthogonal contrasts, randomized block, Latin squares, factorial, and fractional factorial. Prerequisite: 2810 or 2820. [3] (MNS)

MATH3000 - History of Mathematics
Course Description

Major developments in mathematics from ancient times to the early twentieth century. Emphasis both on the historical perspective and the mathematics; assignments include many exercises and theorems. Highly recommended for teacher candidates. Prerequisite: 2501 or both 2300 (or 2310) with either 2410 or 2600. [3] (MNS)

MATH3010 - Intensive Problem Solving and Exposition
Course Description

Intended to develop widely-applicable mathematical skills. Basic principles such as induction, the pigeonhole principle, symmetry, parity, and generating functions. Prerequisite: 2300, 2310, or 2500. [3] (MNS)

MATH3100 - Introduction to Analysis
Course Description

Properties of real numbers, compactness and completeness. Limits, sequences and series, uniform convergence, and power series. Basic properties of functions on the real line, and the elementary theory of differentiation and integration. Emphasis on methods of proof used in advanced mathematics courses. Prerequisite: 2501 or both 2300 (or 2310) with either 2410 or 2600. [3] (MNS)

MATH3110 - Complex Variables
Course Description

Complex numbers, analytic and elementary functions, transformations of regions. Complex integrals, Cauchy's integral theorem and formula, Taylor and Laurent series. The calculus of residues with applications, conformal mappings. Prerequisite: 2300, 2310, or 2501. [3] (MNS)

MATH3120 - Introduction to Partial Differential Equations
Course Description

Initial- and boundary-value problems for partial differential equations using separation of variables in conjunction with Fourier series and integrals. Explicit solutions of problems involving the heat equation, the wave equation, and Laplace's equation. Prerequisite: Either 2410, 2600, or 2501 and either 2400, 2420, or 2610. [3] (MNS)

MATH3130 - Fourier Analysis
Course Description

Fourier series topics including convolution, Poisson kernels, Dirichlet kernels, and pointwise and mean-square convergence. Integral transforms including one-dimensional and multidimensional Fourier integrals, Fourier inversion formula and Plancherel theorem, Poisson summation formula, Radon transform, and X-ray transform. Fourier analysis on Abelian groups including finite Fourier analysis and fast Fourier transform. Applications to signal processing, Shannon sampling theory, and/or compressed sensing. Prerequisite: Either 2501; or both 2300 (or 2310) with either 2410 or 2600. [3] (MNS)

MATH3200 - Introduction to Topology
Course Description

Open sets, closed sets, continuity, compactness, and connectivity. Subspaces, product spaces, and quotient spaces. Knot theory, topology of surfaces, and applications. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH3210 - Transformation Geometry
Course Description

Transformations of the plane, groups of transformations, reflections, glide reflections, classification of the isometries of the plane, frieze groups, analysis of frieze patterns, wall paper groups, and analysis of wall paper patterns. Especially recommended for prospective teachers of mathematics. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH3230 - Introduction to Differential Geometry
Course Description

Smooth maps, tangent space, and surfaces and hypersurfaces in n-dimensional Euclidean space. Inverse and Implicit Function theorems. Sard's theorem. Transversality. Degree of a map; intersection theory modulo 2. Orientability and oriented intersection number. Prerequisite: 2501 or both 2300 and either 2410 or 2600. [3] (MNS)

MATH3300 - Abstract Algebra
Course Description

Fundamental properties of integers and polynomials. Elementary properties of groups, rings, integral domains, fields, and lattices. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH3310 - Introduction to Mathematical Logic
Course Description

Development of the first order predicate calculus and fundamental metamathematical notions. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH3320 - Error-Correcting Codes and Cryptography
Course Description

Applications of algebra to reliability and secrecy of information transmission. Error-correcting codes, including linear, Hamming, and cyclic codes, and possibly BCH or Reed-Solomon codes. Cryptography, including symmetric-key, DES and RSA encryption. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH3330 - Advanced Linear Algebra
Course Description

Orthogonal bases, orthogonal projections, Gram-Schmidt orthogonalization, Householder transformations, and Courant-Fisher min-max Theorem. Normal, self-adjoint matrices, pseudo inverses, and positive definite and semi-definite matrices. Matrix decompositions including QR factorization, diagonalization, Jordan decomposition, and singular value decomposition. Hilbert spaces, linear functionals, and Riesz Representation Theorem. Applications include least squares problems, regression models, optimization, data denoising, principle component analysis, and dimension reduction for data analysis. Serves as repeat credit for Math 3890 section 01 in Spring 2018 or Spring 2019. Prerequisite: 2410 or 2501 or 2600. [3] (MNS)

MATH3600 - Advanced Engineering Mathematics
Course Description

Vector analysis including directional derivatives, transformation of coordinates, divergence and curl. Line integrals, surface integrals, and divergence theorem. Stokes' theorem. Functions of a complex variable, including limits, derivatives, and Cauchy-Riemann equations. Exponential, trigonometric, hyperbolic, and logarithmic functions. Complex integrals, Cauchy's integral theorem and formula. Taylor and Laurent series. Calculus of residues. Prerequisite: 2400, 2420, or 2610. [3] (MNS)

MATH3620 - Introduction to Numerical Mathematics
Course Description

Numerical solution of linear and nonlinear equations, interpolation and polynomial approximation, non-numerical differentiation and integration. Least-squares curve fitting and approximation theory, numerical solution of differential equations, errors and floating point arithmetic. Application of the theory to problems in science, engineering, and economics. Student use of the computer is emphasized. Familiarity with computer programming is expected. Prerequisite: Either 2410, 2600, or 2501, and either 2400, 2420, or 2610. [3] (MNS)

MATH3630 - Mathematical Modeling in Biology and Medicine
Course Description

Basic mathematical modeling tools, such as interpolation, least-squares regression, difference equations, and ordinary and partial differential equations. Statistical analysis of data, support vector machines, and computer simulation. Familiarity with computer programming is expected. Prerequisite: Either 2410, 2600, or 2501, and either 2400, 2420, or 2610. [3] (MNS)

MATH3640 - Probability
Course Description

Combinatorics, probability models (binomial, Poisson, normal, gamma, etc.), Stochastic independence, generating functions, limit theorems and types of convergence, bivariate distributions, transformations of variables. Markov processes and applications. Prerequisite: 2810 or 2820. Co-requisite 2410, 2501, or 2600 [3] (MNS)

MATH3641 - Mathematical Statistics
Course Description

Distribution theory, order statistics, theory of point estimation and hypothesis testing, normal univariate inference, Bayesian methods, sequential procedures, regression, nonparametric methods. Students interested in applications may take 2820L. Prerequisite: 3640. [3] (MNS)

MATH3650 - Introduction to Financial Mathematics
Course Description

Theory of interest including time value of money, annuities, rates of return, yield curves, and immunization. Pricing of financial instruments including annuities, bonds, stocks, and derivatives using arbitrage-free assumptions. Foundational for actuarial science. Prerequisite: 2300, 2310, or 2501. Corequisite: 2810, 2820, or 3640. [3] (MNS)

MATH3651 - Actuarial Models
Course Description

Probabilistic analysis of insurance. Single-life models, including time-value of benefits, life annuities, premiums, and benefit reserves: Multiple-decrement models; Multiple-life models. Probabilistic topics: Markov chains and Poisson processes. Prerequisite: 3650 and either 2810, 2820 or 3640. [3] (MNS)

MATH3660 - Mathematical Modeling in Economics
Course Description

Modeling microeconomic problems of supply and demand, profit maximization, and Nash equilibrium pricing. Auctions and bargaining models. Statistical models and data analysis. Computational experiments. Prerequisite: 2300, 2310, or 2501. [3] (MNS)

MATH3670 - Mathematical Data Science
Course Description

Linear methods for regression and classification, bias-variance tradeoff, and basis expansions and regularization. Kernel methods, support vector machines, dimension reduction, and clustering algorithms. Serves as repeat credit for MATH 3890-01 in Fall 2017. Prerequisite: one of 2810, 2820, or 3641; and one of 2410, 2501, or 2600. [3] (MNS)

MATH3700 - Discrete Mathematics
Course Description

Elementary combinatorics including permutations and combinations, the principle of inclusion and exclusion, and recurrence relations. Graph theory including Eulerian and Hamiltonian graphs, trees, planarity, coloring, connectivity, network flows, some algorithms and their complexity. Selected topics from computer science and operations research. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH3800 - Theory of Numbers
Course Description

Factorization of integers, Fundamental Theorem of Arithmetic, congruences, Wilson's theorem. Fermat's theorem, arithmetic functions, perfect numbers, Law of Quadratic Reciprocity. Diophantine equations, Pythagorean triples, sums of squares. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH3859 - Independent Study
Course Description

Reading and independent study in mathematics under the supervision of an adviser. Designed primarily for honors candidates, but open to others with approval by department chair. [Variable credit: 1-3 each semester, not to exceed 6 without departmental permission] (No AXLE credit)

MATH3890 - Selected Topics for Undergraduates
Course Description

Topics vary. May be repeated for a total of 12 credits in 3890 and 3895 combined if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 2501; or both 2300 (or 2310) with either 2410 or 2600. [1-3; maximum of 12 credits total for all semesters of MATH 3890 and 3895 combined] (No AXLE credit)

MATH4110 - Partial Differential Equations
Course Description

Classification of equations: equations of elliptic, parabolic, and hyperbolic type. Separation of variables, orthonormal series, solutions of homogeneous and nonhomogeneous boundary value problems in one-, two-, and three-dimensional space. Possible additional topics include subharmonic functions and the Perron existence theorem for the Laplace equation of Sturm-Liouville theory. Prerequisite: Either 2410, 2600, or 2501, and either 2400, 2420, or 2610. [3] (MNS)

MATH4200 - Topology
Course Description

Connectedness, compactness, countability, and separation axioms. Complete metric spaces. Function spaces. Prerequisite: 2501, 3200, or 4220. [3] (MNS)

MATH4201 - Topology
Course Description

The fundamental group and covering spaces. Topology of surfaces. Simplicial complexes and homology theory. Homotopy theory. Prerequisite: 4200. [3] (MNS)

MATH4300 - Modern Algebra
Course Description

Group theory through Sylow theorems and fundamental theorem of finitely generated abelian groups. Prerequisite: 3300. [3] (MNS)

MATH4301 - Modern Algebra
Course Description

Introductory theory of commutative rings and fields, and additional topics such as Galois theory, modules over a principal ideal domain and finite dimensional algebras. Prerequisite: 4300. [3] (MNS)

MATH4310 - Set Theory
Course Description

The basic operations on sets. Cardinal and ordinal numbers. The axiom of choice. Zorn's lemma, and the well-ordering principle. Introduction to the topology of metric spaces, including the concepts of continuity, compactness, connectivity, completeness, and separability. Product spaces. Applications to Euclidean spaces. Strongly recommended for beginning graduate students and for undergraduates who plan to do graduate work in mathematics. Prerequisite: 2501; or both 2300 (or 2310) with either 2410 or 2600. [3] (MNS)

MATH4320 - Lattice Theory and the Theory of Ordered Sets
Course Description

An introduction to basic concepts and theorems in lattice theory and the theory of ordered sets with connections to universal algebra and computer science. Boolean algebras, modular and distributive lattices, ordered topological spaces, algebraic lattices and domains, fixed point theorems, cosets, free lattices. Prerequisite: 3300. [3] (MNS)

MATH4600 - Numerical Analysis
Course Description

Finite difference and variational methods for elliptic boundary value problems, finite difference methods for parabolic and hyperbolic partial differential equations, and the matrix eigenvalue problem. Student use of the computer is emphasized. Prerequisite: 3620. [3] (MNS)

MATH4610 - Methods of Mathematical Physics
Course Description

Linear operators on vector spaces, matrix theory, and Hilbert spaces. Functions of a complex variable and calculus of residues. Ordinary and partial differential equations of mathematical physics, boundary value problems, special functions. Prerequisite: Either 2410, 2600, or 2501, and either 2400, 2420, or 2610. [3] (MNS)

MATH4620 - Linear Optimization
Course Description

Linear programming and its applications. Formulation of linear programs. The simplex method, duality, complementary slackness, dual simplex method, and sensitivity analysis. The ellipsoid method. Interior point methods. Applications to networks, management, engineering, and physical sciences. Familiarity with computer programming is expected. Prerequisite: either 2410, 2600, or 2501. [3] (MNS)

MATH4630 - Nonlinear Optimization
Course Description

Mathematical modeling of optimization problems. Theory of unconstrained and constrained optimization, including convexity and the Karush-Kuhn-Tucker conditions. Derivative- and non-derivative-based methods. Familiarity with computer programming is expected. Prerequisite: 2501; or both 2300 (or 2310) and either 2410 or 2600. [3] (MNS)

MATH4650 - Financial Stochastic Processes
Course Description

The theory of stochastic processes and applications to financial economics. Brownian motion; martingales; It√¥'s Lemma; stochastic integration. Monte Carlo simulations with variance reduction techniques. Applications include discretetime option pricing and delta hedging. Prerequisite: 3650 and either 2810, 2820, or 3640. [3] (MNS)

MATH4651 - Evaluation of Actuarial Models
Course Description

Applications of statistics to the evaluation and selection of actuarial models. Severity, frequency, and aggregate models. Measure of risk. Applications of Bayesian analysis to credibility theory. Simulation and bootstrap methods. Prerequisite: 3651, 3641, and 4650. [3] (MNS)

MATH4700 - Combinatorics
Course Description

Elements of enumerative analysis including permutations, combinations, generating functions, recurrence relations, the principle of inclusion and exclusion, and Polya's theorem. Some special topics will be treated as class interest and background indicate (e.g., Galois fields, theory of codes, and block designs). Students unfamiliar with permutations, combinations, and basic counting techniques should take 3700 prior to 4700. Prerequisite: 2410, 2600, or 2501. [3] (MNS)

MATH4710 - Graph Theory
Course Description

The mathematical theory of networks. Traversing graphs using paths, cycles, and trails. Matchings and other graph factors. Coloring of vertices and edges. Connectivity and its relation to paths and flows. Embeddings of graphs in surfaces, especially the plane. Prerequisite: linear algebra. Students unfamiliar with basic ideas of graph theory, including paths, cycles, and trees, should take 3700 prior to 4710. [3] (MNS)

MATH4999 - Senior Thesis
Course Description

A written presentation of research results, original for the student but not usually original in the larger sense. The regulations governing the writing of a master of arts thesis in mathematics will apply to the writing of the senior thesis. [3] (No AXLE credit)

Mechanical Engineering

ME1150 - Automotive Components Seminar
Course Description

General automotive knowledge for engineering and design considerations. Basic component function, terminology and design. Suspension (including suspension kinematics), steering (including steering geometry), driveline, transmission, engine and braking. [1]

ME1151 - Laboratory in Machining
Course Description

Machining and fabrication of metals and plastics. Fabrication, design and manufacturability of parts or components. [1]

ME1152 - Laboratory in Welding
Course Description

Theory of welding processes and welding of metals. Design, fabrication, and manufacturability of parts or components using welding processes. [1]

ME1153 - Computer Aided Design
Course Description

Use of computers for solid modeling of machine parts and assemblies. [1]

ME2160 - Introduction to Mechanical Engineering Design
Course Description

Design fundamentals, computer-aided design, machine fabrication techniques, technical drawing, team-based learning, and a comprehensive design project. Prerequisite: ES 1401-1403 and Mechanical Engineering major. FALL. [3]

ME2171 - Instrumentation Laboratory
Course Description

Techniques associated with engineering measurements, curve fitting, presentation, and analysis of data. Corequisite: MATH 2300. SPRING. [2]

ME2190 - Dynamics
Course Description

The principles of dynamics (kinematics and kinetics) of particles and rigid bodies. Mechanical vibrations. Continuous media. Prerequisite: CE 2200, PHYS 1601. Corequisite: MATH 2300. FALL, SPRING, SUMMER. [3]

ME2220 - Thermodynamics
Course Description

Application of the first and second laws to energy transformation processes and properties of technologically important materials. Prerequisite: PHYS 1601, MATH 2300. FALL, SPRING, SUMMER. [3]

ME3202 - Machine Analysis and Design
Course Description

Application of the principles of mechanics of materials to the analysis and synthesis of machine elements. Corequisite: CE 2205. FALL. [3]

ME3204 - Mechatronics
Course Description

Design of analog and digital electromechanical sensors and actuators, signal and power electronics, and application of digital microcontrollers to mechatronic systems. Prerequisite: EECE 2112; CS 1100 or 1101 or 1103 or 1104. SPRING. [3]

ME3224 - Fluid Mechanics
Course Description

Physical properties of fluids, surface tension, viscosity; fluid statics and dynamics; control volume analysis of mass, momentum, and energy; dimensional analysis, similitude, and modeling; viscous flows in pipes; drag and lift on immersed bodies. Prerequisite: ME 2190, MATH 2420. Credit not awarded for both ME 3224 and CE 3700. FALL. [3]

ME3234 - System Dynamics
Course Description

Energy-based modeling of dynamic mechanical, electrical, thermal, and fluid systems to formulate linear state equations, including system stability, time domain response, and frequency domain techniques. Three lectures and one three-hour laboratory. Prerequisite: ME 2190, MATH 2420. FALL. [4]

ME3248 - Heat Transfer
Course Description

Steady-state and transient heat transfer by conduction, forced and free convection and radiation, including heat transfer by boiling and condensing vapors. Application is made to practical design problems. Prerequisite: ME 2220, ME 3224. SPRING. [3]

ME3273 - How to Make (Almost) Anything and Make it Matter
Course Description

No-tech to high-tech tools and strategies for design. Practical aspects of 2D and 3D CAD for additive manufacturing and laser cutting. Hands-on experience with molding and casting, sewing, composite manufacturing, foam fabrication, vacuum forming, material selection, and other methods to facilitate the prototyping process. Application of human-centered design in a team-based semester-long project with an external sponsor. Open to sophomores and juniors only. No prior engineering knowledge is required; all majors are eligible. [3]

ME3850 - Independent Study
Course Description

Under the direction of a faculty member, students study in a focused area of mechanical engineering culminating in an engineering report of the activities and findings. [1-3 each semester; maximum of 6 hours total for all semesters of ME 3850]

ME3860 - Undergraduate Research
Course Description

Under the direction of a faculty member, students conduct a research project. A formal, written report is required. No more than 6 hours of ME 3860 can be credited toward the degree. [1-3]

ME3890 - Special Topics
Course Description

Technical elective courses of special current interest. FALL, SPRING, SUMMER. [Variable credit: 1-3 each semester] (Offered on demand)

ME4213 - Energetics Laboratory
Course Description

Experimental methods in heat transfer, fluid mechanics, and thermodynamics as applied to energy conversion systems and their analyses. Prerequisite: Senior standing. FALL. [2]

ME4221 - Intermediate Thermodynamics
Course Description

Application of principles of thermodynamics to vapor and gas cycles, mixtures, combustion, and compressible flow. Prerequisite: ME 2220. Corequisite: MATH 2420. [3]

ME4226 - Gas Dynamics
Course Description

Compressible flow from subsonic to supersonic. Shock waves, expansion waves, shock tubes, and supersonic airfoils. Prerequisite: ME 3224. [3]

ME4236 - Linear Control Theory
Course Description

Classical and modern approaches to the analysis and design of single-input/single-output (SISO) and multiple-input/multiple-output (MIMO) linear time invariant control systems. Classical (frequency-domain) and modern (state-space) approaches to SISO and MIMO control, including optimal control methods. Prerequisite: ME 3234. FALL. [3]

ME4251 - Modern Manufacturing Processes
Course Description

Manufacturing science and processes. A quantitative approach dealing with metals, ceramics, polymers, composites, and nanofabrication and microfabrication technologies. Prerequisite: ME 3202. Corequisite: ME 4950. [3]

ME4258 - Engineering Acoustics
Course Description

The wave equation and its solutions; acoustic sources; reflection and transmission of sound; propagation in pipes, cavities, and waveguides; noise standards and effects of noise on people; principles of noise and vibration control; signal processing in acoustics; environmental noise measurement and control; and various contemporary examples. Prerequisite: MATH 2400 or 2420. [3]

ME4259 - Engineering Vibrations
Course Description

Theory of vibrating systems and application to problems related to mechanical design. Topics include single degree of freedom systems subject to free, forced, and transient vibrations; systems with several degrees of freedom, methods of vibration suppression and isolation, and critical speed phenomena. Prerequisite: ME 2190, MATH 2420. [3]

ME4260 - Energy Conversion
Course Description

Energy resources, use, and conservation are studied. The fundamentals of positive displacement machinery, turbo-machinery, and reactive mixture are introduced and used to examine various forms of power-producing systems. Prerequisite: ME 2220, ME 3224. [3]

ME4261 - Basic Airplane Aerodynamics
Course Description

Study of the atmosphere; analysis of incompressible and compressible flows, shock waves, boundary layer and skin friction drag, lift and drag forces over airfoils and wings, and flight performance; aircraft stability and control, wing icing, and parachute-based recovery; history of flight and aerodynamics. Corequisite: ME 3224. [3]

ME4262 - Environmental Control
Course Description

Heating and cooling systems, energy conservation techniques, use of solar energy and heat pumps. Prerequisite: ME 2220. Corequisite: ME 3248. [3]

ME4263 - Computational Fluid Dynamics and Multiphysics Modeling
Course Description

Computational modeling of viscous fluid flows and thermal-fluid-structure interaction. Computational techniques including finite-difference, finite-volume, and finite-element methods; accuracy, convergence, and stability of numerical methods; turbulence modeling; rotating machinery; multiphase flows; and multiphysics modeling. Prerequisite: ME 3224. SPRING. [3]

ME4264 - Internal Combustion Engines
Course Description

Thermodynamics of spark ignition and compression ignition engines; gas turbines and jet propulsion. Prerequisite: ME 2220. [3]

ME4265 - Direct Energy Conversion
Course Description

The principles and devices involved in converting other forms of energy to electrical energy. Conversion devices: electro-mechanical, thermoelectric, thermionic, fluid dynamic, and fuel cell. Prerequisite: ME 2220. [3]

ME4267 - Aerospace Propulsion
Course Description

Application of classical mechanics and thermodynamics to rocket and aircraft propulsion. Design and performance analysis of air-breathing and chemical rocket engines. Advanced propulsion systems for interplanetary travel. Contemporary issues in aerospace propulsion: space exploration, renewable fuels. Prerequisite: ME 2220, ME 3224. [3]

ME4271 - Robotics
Course Description

History and application of robots. Robotic mechanical architecture, mobility analysis of linkages, rotations and rigid body transformations and their parametrizations. Homogeneous coordinates of points and lines, exponential coordinates of rotation and twist coordinates, direct and inverse position analysis of serial manipulators and elimination theory. Serial robot statics and compliance, motion interpolation/path planning, instantaneous kinematics and Jacobian formulations. Lagrangian dynamics of serial robots, and motion control. Prerequisite: One of MATH 2400, 2410, 2500, 2501, or 2600. [3]

ME4275 - Finite Element Analysis
Course Description

Development and solution of finite element equations for solid mechanics and heat transfer problems. Commercial finite element and pre- and post-processing software. Prerequisite: CE 2205, MATH 2420. [3]

ME4280 - Advanced Dynamics of Mechanical Systems
Course Description

Development of methods for formulating differential equations to model mechanical systems, including formalisms of Newton-Euler, Lagrange, and virtual work methods to two- and three-dimensional systems. Prerequisite: ME 2190, MATH 2420. [3]

ME4284 - Modeling and Simulation of Dynamic Systems
Course Description

Incorporates bond graph techniques for energy-based lumped-parameter systems. Includes modeling of electrical, mechanical, hydraulic, magnetic and thermal energy domains. Emphasis on multi-domain interaction. Prerequisite: ME 3234. [3]

ME4950 - Design Synthesis
Course Description

Development of the design process: problem definition, design specifications, solution identification, idea synthesis, modeling and simulation, and design completion. Critical elements include problem selection, idea synthesis, and proposal writing. Individual design synthesis study projects required. Prerequisite: ME 2160 and senior standing in Mechanical Engineering. FALL. [2]

ME4951 - Engineering Design Projects
Course Description

Each student participates in a major group design project. Lectures will cover case studies and topics of current interest in design. Prerequisite: ME 4950. SPRING. [3]

ME4959 - Senior Engineering Design Seminar
Course Description

Elements of professional engineering practice. Professionalism, licensing, ethics and ethical issues, intellectual property, contracts, liability, risk, reliability and safety, interdisciplinary teams and team tools, codes, standards, professional organizations, careers, entrepreneurship, human factors, and industrial design. Prerequisite: senior standing. Corequisite: ME 4950. FALL. [1]

Medicine, Health, and Society

MHS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

MHS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

MHS1500 - Introduction to Microbiology
Course Description

Diversity of bacteria and viruses. Genetics and metabolism of bacteria. Pathogenesis, host immune defense mechanisms, rationale for antimicrobial drugs. Bacteria, fungi, viruses, and parasites important to humans. No credit for students who have earned credit for NURS 1500. [3-4] (MNS)

MHS1600 - Introduction to Nutrition and Health for a Changing World
Course Description

Nutrition science and research; basic principles of digestion and absorption; role of specific nutrients and dietary practices in health promotion and chronic disease prevention. Nutrition throughout the lifespan. Not intended for students who have previously taken NURS 1601 or NURS 1602. [3] (MNS)

MHS1920 - Politics of Health
Course Description

Sociocultural analysis of the conflicts, definitions, inequalities, and structures of power that influence health. [3] (P)

MHS1930 - Social Dimensions of Health and Illness
Course Description

Multidisciplinary introduction to health conditions from perspectives of anthropology, economics, history, political science and policy studies, philosophy, religious studies, and sociology. Guest lectures by representatives of various disciplines. [3] (P)

MHS1940 - Racial and Ethnic Health Disparities
Course Description

Relationship between health outcomes and race and ethnicity. Historical and contemporary factors influencing differences in health outcomes, including mental health, HIV/AIDS, and other chronic diseases. Explanations of health disparities and of strategies to reduce them. [3] (SBS)

MHS1950 - Theories of the Body
Course Description

Interdisciplinary study of the human body through critical theory, history, philosophy, art, and popular culture. How cultural understandings of bodies reflect broader social, political, scientific, and legal regimes. [3] (HCA)

MHS1960 - Health Humanities
Course Description

Cultural, political, and material aspects of human health through novels, memoirs, articles, poems, and films. Serves as repeat credit for students who have earned credit for MHS 3890-04 offered spring 2019 and fall 2018. [3] (HCA)

MHS2110 - American Medicine and the World
Course Description

Social foundations of medical authority. Health disparities in the United States and abroad. Effects of social settings of medical research, evaluation, and treatment on health outcomes. Inequalities in medical knowledge and institutions. [3] (P)

MHS2120 - Health Social Movements
Course Description

Health inequality and inequity based on race, ethnicity, gender, class, and sexuality. Issues related to access to health care services. Crusades for certain diseases, illness experiences, and disabilities. Challenging science on etiology, diagnosis, treatment, and prevention. [3] (P)

MHS2130 - Social Movements and Community Action
Course Description

The literature of social activism. How citizens individually and collectively accomplish and resist social change. Historical and contemporary health movements as case studies to illustrate the advantages and limitations of social change strategies. [3] (SBS)

MHS2140 - Health Care in the United States: Policy and Politics
Course Description

Public health and health care delivery systems. Evolving social and economic climates that shape health. Topics include health care access, cost, quality, and health disparities; trends in health care industries; the global COVID-19 pandemic; and comparative health systems. Not open to students who have completed MHS 3890-06 offered spring 2021, or MHS 3890-03 offered fall 2020. [3] (US)

MHS2150 - Medical Humanities
Course Description

Conceptual and creative analysis of philosophy, literature, art, and music to identify and account for human nature in the medical context. Ethical, practical, and social management of medical technology. Theories of art, music, and literature to understand human creativity and self-explanation in the face of illness and difference. [3] (HCA)

MHS2210 - Examining Care & Caregiving
Course Description

Various cultural conceptions of what counts as good care, drawn from anthropology, sociology, films, and literature. Medicare, Medicaid; home healthcare of older adults in the United States, South Korea, Denmark, and Thailand. Drug treatment and sexual assault survivor programs. Provision of care during epidemics and pandemics. Not open to students who have completed MHS 3890-01 offered Spring 2021.[3] (P)

MHS2230 - Masculinity and Men's Health
Course Description

Interdisciplinary approach to men's health issues and to perceptions of masculinity. The history of men's diseases. Men in clinical settings. Social policies that affect men's health behaviors. [3] (P)

MHS2240 - Bionic Bodies, Disability Cultures
Course Description

Historical and cultural evolution of prosthetics, artificial limbs, and other assistive technologies. Shifts in social views resulting from war, economics, and art and design. [3] (HCA)

MHS2250 - War and the Body
Course Description

Impact of war on the human body. Anthropology of the body and theories of bodily experience. Production, representation, and experience of war and of military and medical technologies on a bodily level. Acceptable and unacceptable types of harm. [3] (P)

MHS2260 - LGBTQ Health Disparities
Course Description

LGBTQ terminology and history related to health; frameworks, theories, and research methods; potential solutions to reduce LGBTQ health inequities. Roles of interpersonal influences, family and close relationships, community and social organizations. Public policy, public health, and healthcare interventions. [3] (SBS)

MHS2310 - Chinese Society and Medicine
Course Description

Medicine and health in contemporary China. Social organization of medical care, social determinants of health and disease, social construction of health and disease, and health-related social problems. [3] (SBS)

MHS2320 - Medicine, Law, and Society
Course Description

Survey of issues in medicine and law, including the physician-patient relationship, medical malpractice, organ donation, healthcare financing, and the limits and powers of the government to protect the public's health. [3] (SBS)

MHS2330 - Men's Health Research & Policy
Course Description

Concepts and theories of men's health. Global and domestic issues. Effect of men's social and economic advantages on health outcomes. Strategies to improve men's health; relationships between cultural values and health policy; and cultural explanations that shape men's health campaigns. [3] (SBS)

MHS2333 - Policing the Pandemic
Course Description

Full description pending. [3]

MHS2350 - Italian Representations of Wellness and Illness
Course Description

From 1300 to the present. Depictions of health and sickness in Italian literature, art, and film. Historical, cultural, and social dimensions of health in Italy and changes in the societal approach to health. Italian society's views on health, wellness, and the stigmatization of physical and mental illness. [3] (INT)

MHS2375 - Families in Turbulent Times
Course Description

Intergenerational contemporary issues that impact individual and family stress; change and resiliency strategies that impact health and access to healthcare. Serves as repeat credit for students who completed MHS 3890-08 offered Fall 2022, or MHS 3890-02 offered Spring 2023, or MHS 3890-08 offered Fall 2023. [3]

MHS2410 - HIV/AIDS in the Global Community
Course Description

Medical, social, political, economic, and public policy dimensions of HIV/AIDS. Prevention and treatment strategies, social stigma, and discrimination. [3] (P)

MHS2420 - Economic Demography and Global Health
Course Description

Economic consequences of demographic change in developing and developed countries. Links between socioeconomic status and health; relationship between health and economic growth; determinants of fertility, mortality, and migration. [3] (SBS)

MHS2430 - Social Capital and Health
Course Description

Theoretical approaches to social capital and their applications to the social production of disease and illness. Theoretical background of social capital; the conceptualization and measurement of social capital; and the multiple roles of social capital as a social antecedent of health. [3] (SBS)

MHS2510 - Caring for Vulnerable Populations
Course Description

Humanitarian aid and the risks and responsibilities in providing for vulnerable populations. Differences between acute and chronic crises. Geopolitical, cultural, clinical, and practical factors. [3] (No AXLE credit)

MHS2520 - Autism in Context
Course Description

Multiple manifestations. Impact, questions, and debates. Familial, educational, sociological, legal, and medical contexts. [3] (SBS)

MHS2610 - Global Health Crises
Course Description

Development of global health priorities, responses to emerging crises, and unintended consequences of global health interventions. [3] (INT)

MHS2700 - Trauma, Violence, & Health
Course Description

Various types of traumas and how they impact people and communities; short- and long-term psychological, behavioral, and physical effects. Influences on physical and mental health, interactions with the health care system and health care providers, educational outcomes, and quality of relationships. Theories of trauma, interventions, empirical studies, and mass traumas, with attention to issues of diverse populations and multiculturalism. Serves as repeat credit for students who have completed MHS 3890 section 02 offered fall 2019, or 3890 section 07 offered spring 2020, or 3890 section 02 offered fall 2020, or 3890 section 07 offered spring 2021, or 3890 section 01 offered summer 2021, or 3890 section 01 offered fall 2021, or 3890 sections 07 or 08 offered spring 2022. [3] (P)

MHS2920 - Medicine on Trial
Course Description

Medicine as an object of dispute and a source of evidence in courts of law. Key cases and issues in Western law. Medicine adjudicated in religious, military, tribal, national, and international courts. [3] (SBS)

MHS2940 - Race, Citizenship, and Health
Course Description

Social and historical impacts of immigration, settlement, nation formation, labor exploitation, imperialism, and globalization on populations categorized as victims, vectors of disease, or sanitary citizens. Health as a key site in which the meaning of race and citizenship are developed and navigated. [3] (P)

MHS2950 - Healing Animals
Course Description

Animals as subjects of medical research and as patients in veterinary medicine. Health of animals as friends, food, entertainment, and vectors of disease. Celebration and concealment of the centrality of animals in modern medicine through legal, economic, social, and emotional techniques. [3] (P)

MHS3000 - Undergraduate Seminar
Course Description

Advanced reading, research, and writing. Topics vary. Limited to juniors and seniors with preference to majors in Medicine, Health, and Society. May be repeated for credit once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Offered on a graded basis only. [1-3; maximum of 6 credits total for all semesters of MHS 3000] (No AXLE credit)

MHS3010 - Global Health Principles and Practice
Course Description

Introduction to major global health principles and practices in the developing and developed world. Perspectives of public health practitioners and critical thinking about global health challenges and solutions. [3] (P)

MHS3020 - U.S. Public Health Ethics and Policy
Course Description

Critical perspectives on ethical and policy issues in U.S. public health. [3] (P)

MHS3030 - Community Health Research
Course Description

Conceptual and methodological challenges. Focus on descriptive studies and intervention research to address health disparities in chronic diseases and psychiatric disorders. [3] (SBS)

MHS3040 - Designing Healthy Publics
Course Description

Politics of public health and the built environment in U.S. cities from the nineteenth century to the present. Critical perspectives on health promotion, research, and design. Nashville as a case study. [3] (US)

MHS3045 - Epidemics and Society
Course Description

Disease outbreaks shaping society throughout history. National responses to epidemics; legacy of colonialism and its influences on health outcomes. Critical thinking about global health challenges, strategies, and solutions. [3] (INT)

MHS3050W - Medicine and Literature
Course Description

Narrative analysis, and other humanistic, interpretative practices of relevance to medicine and health. [3] (HCA)

MHS3060 - Mental Health in Adolescence
Course Description

Mental health diagnoses as experienced in the adolescent population; evidence-based treatment options and self-care strategies utilized in clinical and community settings. Serves as repeat credit for students who have earned credit for MHS 3890-07 offered Fall 2022 or MHS 3890-01 offered Spring 2023. [3]

MHS3075 - Mental Health Policy
Course Description

Contemporary policymaking and research on mental health. Legislative and care-related approaches to mental health and substance use in historical context. The opioid epidemic; special populations, and current active policy debates. Serves as repeat credit for MHS 3890, section 11 in Fall 2022. [3] (No Axle Credit)

MHS3110 - Global Health and Social Justice
Course Description

Global health institutions, policies, and practices. Issues of social justice. Anthropological, sociological, and scientific studies that address the social, moral, political and economic factors influencing the definition of and response to global health problems. [3] (P)

MHS3120 - Medicine, Technology, and Society
Course Description

Tensions between art and science in medicine. The effects of science and technology on the doctor-patient relationship. Social and ethical issues raised by new biomedical developments. [3] (SBS)

MHS3140 - Afrofuturism and Cultural Criticisms of Medicine
Course Description

Exploration of Afrofuturism as a literary genre and its critique of the impact of techno-science and medicine on black health, life, and futurity. Multidisciplinary approach in understanding novels, memoirs, and secondary texts. [3] (HCA)

MHS3150 - Death and Dying in America
Course Description

Interdisciplinary introduction to thanatology; changes in medicine and attitudes towards dying as they reshape the American way of death in a multicultural landscape. [3] (P)

MHS3210 - Health, Development, and Culture in Guatemala
Course Description

Social dimensions of health in Guatemalan communities. History, culture, and political economy. Spanish language skills strongly recommended. Instructor consent required. [3] (INT)

MHS3212 - Health, Development, and Culture in Guatemala
Course Description

Social and political dimensions of health and development in Guatemala through fieldwork and service learning in rural Maya communities in Quetzaltenango and Solol√°. Prerequisite: 3210. [1-3] (No AXLE credit)

MHS3220 - Healthcare Organizations
Course Description

Key healthcare organizations in the context of policies governing the U.S. healthcare system. How organizations and policies shape the meaning of health and the dynamics of medical encounters. [3] (SBS)

MHS3250 - Perspectives on Trauma
Course Description

Trauma as a framework for understanding individual and collective suffering. Trauma in the context of medicine, war, and politics, and of racial, sexual, and gender inequalities. Alternative ways of conceptualizing feeling, memory and loss. [3] (SBS)

MHS3310 - Healthcare Systems Comparisons
Course Description

Maymester. Travel to France and Italy. Comparison of US healthcare system to universal healthcare systems. On-site healthcare facilities visits. Role of government, insurance coverage and financing, strategies, quality of care, disparities, care coordination, electronic health records, costs, innovations and reforms. Taught in English. Offered on a graded basis only. [3] (INT)

MHS3320 - Introduction to U.S. Health Care Policy
Course Description

Key features of U.S. health care system. Financing and delivery; historical trends; and comparisons to other countries. Methods of health policy evaluation. [3] (SBS)

MHS3333 - Health Policy and the Trump Administration
Course Description

Full description pending. [3]

MHS3350 - Medicine, Religion, and Spirituality
Course Description

How individuals, families, and communities deal with such life events as birth, serious illness and injury, disability, war, and death through the combined belief in medicine and religion. Sources include fiction, poetry, drama, film, and texts. Research seminar. [3] (No AXLE credit)

MHS3450 - Mental Illness Narratives
Course Description

Mental illness experiences through memoir, film, and spoken word. Serves as repeat credit for MHS 3890 Section 01 in Spring 2017. [3] (P)

MHS3830 - Service Learning
Course Description

Under faculty supervision, students will design a program of community service associated with a set of learning objectives. The service component (3830) should benefit both the recipient and the provider of the service, offering the latter opportunities for self-reflection, self-discovery, and the development of values, skills, and knowledge. A central objective must be firsthand experience of a central issue or issues studied in sociology, psychology, political science, economics, or another academic discipline. The MHS program will work to find placements for interested students. The other component, 3831, will consist of an independent study in the relevant discipline and must be closely linked to the issue(s) addressed in 3830. For example, a student may provide services to the elderly in nursing homes and use 3831 to study how state and federal policies affect the delivery of health care and other services to nursing home populations. To be accepted, students must have a 2.90 overall grade point average and 6 hours of prior work in approved MHS courses. They must submit a specific plan for the service-learning experience to the MHS program director. Must be taken Pass/Fail and concurrently with 3831. These hours shall not be included in the minimum hours required for the MHS major or minor. After completing the experience, all students must write a thorough report. Corequisite: 3831. [1-3] (No AXLE credit)

MHS3831 - Service Learning Research and Readings
Course Description

Under faculty supervision, students will design a program of community service associated with a set of learning objectives. The service component (3830) should benefit both the recipient and the provider of the service, offering the latter opportunities for self-reflection, self-discovery, and the development of values, skills, and knowledge. A central objective must be firsthand experience of a central issue or issues studied in sociology, psychology, political science, economics, or another academic discipline. The MHS program will work to find placements for interested students. The other component - 3831 - will consist of an independent study in the relevant discipline and must be closely linked to the issue(s) addressed in 3830. For example, a student may provide services to the elderly in nursing homes and use 3831 to study how state and federal policies affect the delivery of health care and other services to nursing home populations. To be accepted, students must have a 2.90 overall grade point average and 6 hours of prior work in approved MHS courses. They must submit a specific plan for the service-learning experience to the MHS program director. Students will write a substantial research or interpretative paper under the supervision of a Vanderbilt faculty member on a topic related to their service learning experience. Corequisite: 3830. [1-3] (No AXLE credit)

MHS3850 - Independent Study
Course Description

A program of reading and/or research in one area of MHS studies to be selected in consultation with an adviser. Normally limited to qualified MHS minors or majors. Approval of faculty adviser and MHS program director required for enrollment. May be repeated for credit once if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. (However, students in the MHS honors program may count a total of 12 hours in MHS 3850, including the 6 hours in the senior year devoted to preparation of the honors thesis. The same instructor will ordinarily supervise work on the honors thesis in both fall and spring semesters; a student may work with a thesis adviser who has previously supervised an independent study with that student.) [1-3; maximum of 6 credits for all semesters of MHS 3850; maximum of 12 credits for students in the MHS honors program] (No AXLE credit)

MHS3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private agencies, institutions, and programs devoted to health care, public health, health-related policy and research. Two options are available. (1) Full-time: 12-15 hours total, including 6-9 hours in 3880, and 6 hours in 3881. (2) Part-time: 2-9 hours total, including 1-6 hours in 3880 and 1-3 hours in 3881. To be accepted for either option, students must have a 2.90 grade point average and 6 hours of prior work in approved MHS courses; they must submit a specific plan for the internship to the MHS program director. After completing the internship, all students must write a thorough report. Note: All work for an internship must be completed during a single semester or summer. Must be taken Pass/Fail and concurrently with 3881. These hours shall not be included in the minimum hours required for the MHS major or minor. Corequisite: 3881. [Variable credit: 1-9] (No AXLE credit)

MHS3881 - Internship Readings and Research
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private agencies, institutions, and programs devoted to health care, public health, health-related policy and research. Two options are available. (1) Full-time: 12-15 hours total, including 6-9 hours in 3880, and 6 hours in 3881. (2) Part-time: 2-9 hours total, including 1-6 hours in 3880 and 1-3 hours in 3881. To be accepted for either option, students must have a 2.90 grade point average and 6 hours of prior work in approved MHS courses; they must submit a specific plan for the internship to the MHS program director. After completing the internship, all students must write a thorough report. Note: All work for an internship must be completed during a single semester or summer. Students will write a substantial research or interpretative paper under the supervision of a regular Vanderbilt faculty member. Corequisite: 3880. [Variable credit: 1-6] (No AXLE credit)

MHS3890 - Special Topics
Course Description

May be repeated for credit if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3; maximum of 9 credits total for all semesters of MHS 3890] (No AXLE credit)

MHS4010 - Psychiatry, Culture, and Globalization
Course Description

Cross-cultural analysis of mental illness; the emergence of cultural psychiatry; and the globalization of biopsychiatry and neuroscience. [3] (P)

MHS4050 - Narrative and Medicine: Stories of Illness and the Doctor-Patient Relationship
Course Description

Use of classical and contemporary illness narratives to understand the doctor-patient relationship. Focus on patient stories in clinical settings. [3] (HCA)

MHS4998 - Honors Research
Course Description

Offered on a graded basis only. Limited to seniors admitted to the departmental honors program. [3] (No AXLE credit)

MHS4999 - Honors Thesis
Course Description

Offered on a graded basis only. Limited to seniors admitted to the departmental honors program. [3] (No AXLE credit)

Military Science-PC

MS-PC1210 - Leadership and Personal Development
Course Description

Leadership is one of the most compelling topics of our time, and might be one of the most important attributes for effectiveness in all levels of human endeavor. The success of one of the most admired and respected institutions in our country, the military is founded upon the understanding and effective application of leadership, and the development of leaders. This course introduces students to the personal challenges and competencies that are critical to effective leadership. The focus is on developing basic knowledge and comprehension of leadership attributes and core leader competencies in a universal setting and exploring potential applications of these principles and practices at Vanderbilt, in the military and in the corporate world. [1]

MS-PC1210L - Leadership and Personal Development Lab
Course Description

Leader development is a continuous process of training, assessment and feedback with the goal of instilling and enhancing desirable behavior in individuals and organizations. Within the military science curriculum, this process is called the Leadership Development Program (LDP), modeled after the principles spelled out in Field Manual 22-100, Army Leadership, and standardized both on campus and Leadership Development and Assessment Course (LDAC) environments. The flexible methodology of LDP accommodates personalized, individual development at all levels of proficiency throughout the officer educational experience, from program entry to commissioning. The LDP includes basic leadership training, periodic assessment and counseling at both team and individual levels by experience observers. Trends and deficiencies are identified and addressed with retraining and reassessment in a continuous cycle. Effective leader development is progressive, building on lessons learned and maximizing individual potential. This course introduces students to the leadership development process by providing structured leadership opportunities in a variety of training settings. Student performance in leadership roles is assessed and notable strengths and weaknesses are identified. A plan for improvement is discussed in detail during one-on-one counseling sessions. [1]

MS-PC1230 - Leadership and Personal Development II
Course Description

What motivates others to follow a person is intriguing, inspiring and alluring. Through routine observation, we learn from leaders regardless of the setting (military, business, education, etc.) This course provides an overview of leadership fundamentals such as setting direction, problem-solving, listening and providing feedback. You will explore dimensions of leadership, values, attributes, skills, and actions in a military context through practical, hands-on, and interactive exercises. [1]

MS-PC1230L - Leadership and Personal Development II Lab
Course Description

Leader development is a continuous process of training, assessment and feedback with the goal of instilling and enhancing desirable behavior in individuals and organizations, this process is called the Leadership Development Program. Effective leader development is progressive, building on lessons learned and maximizing individual potential. This course introduces students to the leadership development process by providing structured leadership opportunities in a variety of training settings. A plan for improvement is discussed in detail during one-on-one counseling sessions. [1]

MS-PC2150 - Foundations of Leadership
Course Description

This course introduces the process of understanding and defining leaders in order to develop leadership skills appropriate for future commissioned Army officers. The class is broken down into five key skill development areas: 1) values and ethics, 2) personal development, 3) officership, 4) leadership and, 5) tactics and techniques. The class emphasizes individual leadership values and characteristics with a focus on Leadership Theory and Interpersonal Communications, Army Values, Troop Leading Procedures, Problem Solving, and Team Building in a military environment. [2]

MS-PC2150L - Foundations of Leadership Lab
Course Description

This lab builds upon the classroom topics in MS-PC 2150 and introduces the process of understanding and defining leaders in order to develop leadership skills appropriate for the future commissioned officers. The lab is broken down into five key skill development areas: 1) leadership, 2) values and ethics, 3) personal development, 4) professional Officership, and 5) various tactics, techniques, and procedures. The lab emphasizes individual leadership values and characteristics with a focus on Leadership Theory and Interpersonal Communications, Army Values, Troop Leading Procedures, Problem Solving, and Team Building in a military environment. [1]

MS-PC2160 - Foundations of Tactical Leadership
Course Description

This course builds upon MS-PC 2150. The course is broken down into five key skill development levels: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. This class will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [2]

MS-PC2160L - Foundations of Tactical Leadership Lab
Course Description

This course builds upon MS-PC 2150 and 2150L. The lab is broken down into five key skill development levels: 1) leadership, 2) values and ethics, 3) personal development, 4) professional officership, and 5) various tactics, techniques, and procedures. This class will focus on individual leadership development where the student begins to plan, organize, and lead small teams and groups in situational training exercises. Students begin to apply leadership skills at the smallest unit level. [1]

MS-PC3110 - Leadership and Problem Solving
Course Description

This course builds upon your skills developed in MS-PC 2160 (1520, and continues to develop leadership, Officership skills, self-awareness, and critical thinking skills through challenging scenarios related to small-unit tactical operations. Cadets receive systematic and specific feedback on their leadership values, attributes, skills, and actions. Prerequisites: MS-PC 1210, 1230, 2150, and 2160 [3]

MS-PC3120 - Applied Team Leadership
Course Description

Challenging scenarios related to small-unit tactical operations are used to develop self-awareness and critical thinking skills. Cadets receive systematic and specific feedback on their leadership values, attributes, skills, and actions. Open to ROTC Cadets only. Prerequisite: MS 211. [3]

MS-PC3850 - Independent Study in Military Science
Course Description

Individual study of selected topics or research in the Military Science Department. Consent of supervising faculty member required. May be repeated. [1-3]

MS-PC4150 - Leadership and Ethics
Course Description

Students develops proficiency in planning, executing, and assessing complex operations, functioning as a member of a staff, and providing leadership-performance feedback to subordinates. Students are given situational opportunities to assess risk, make sound ethical decisions, and provide coaching and mentoring to fellow ROTC Cadets. Open to ROTC Cadets only. [3]

MS-PC4160 - Leadership in a Complex World
Course Description

This course explores the dynamics of leading in the complex situations of current military operations in the contemporary operating environment. It introduces the concept of culture, its components, how culture influences human behavior, the impact of culturally influenced behavior on military operations, and how to analyze and apply cultural considerations in the planning and execution of military operations. Open to ROTC Cadets only. Prerequisite: MS-PC 4150. [3]

Music Business/Entrepreneurshp

MENT1120 - The Business of Music
Course Description

A general survey of music in the world of commerce. Systems of the contemporary music business, with special emphasis on the recording industry. Music business professionals as guest lecturers. FALL, SPRING. [3] Porter.

MENT1130 - Building Communities through Music and the Arts
Course Description

The philosophical and strategic background for and practical skills in audience-focused and audience-engaged arts programming. Techniques to make music both accessible and relevant to learners; development of interactive programs and curriculum-directed programs; form, structure, and pacing of programs, including repertoire selection and duration, presentation of music, and participatory experiences. FALL [1] Korn.

MENT1135 - Arts Administration: Best Practices and Careers in the Arts Organization Marketplace
Course Description

A study of best practices and development of marketable skills in arts administration. Investigation of arts administration employment opportunities, roles and responsibilities in executive leadership, finances, fundraising, artistic leadership, education, organizational development, and marketing and media. Leading arts institutions are studied as models for arts administration careers and professional advancement. Guest artist administrators will further class discussion and real world application. [1]

MENT1140 - Creating Funding and Non-Profit Vehicles for 21st Century Community Service
Course Description

Strategies for planning, financing, supporting, and sustaining an artistic and social development mission. Specific tools for creating mission-driven music, arts and community service organizational structures. SPRING. [2] Korn.

MENT3100 - Career Preparedness: The Business of a Music Professional
Course Description

Prepares students for a career in music and its related fields. Emphasis on essential skills for building a portfoliio, leveraging digital content online, fiscal management, interviewing/auditioning, audience engagement, basic marketing/branding, copyright/ownership, career adaptability, and developing an artistic vision. Course will be led by a rotation of faculty.

MENT3110 - 21st Century Artistry: Advanced Skills in Live Performance, Technology and Communication
Course Description

Skills for artistry, employment, audience engagement, communications, and the business of live music performance and recording. Emphasis on live and recorded stage and communication presentation; utilization of laptops as recording and live technologies; and creative application of technology, creativity, advocacy and business skills for employment. Prerequisite: MUTH 2400 or permission of instructor.

MENT3880 - Music Internship (1 credit)
Course Description

Academic research and writing related to a co-requisite internship experience under the direction of a faculty sponsor. Prerequisite: 2.9 GPA, sophomore standing, and approval of project prospectus by faculty sponsor and by Associate Dean. May be repeated for credit, up to 1 credit per semester of enrollment. FALL, SPRING. [1].

MENT3881 - Music Internship (3 credits)
Course Description

An extensive academic program of study related to a co-requisite internship experience under the direction of a faculty sponsor. Prerequisite: 2.9 GPA, sophomore standing, and approval of project prospectus by faculty sponsor and by Associate Dean. May be repeated for credit, up to 3 credits per semester of enrollment. FALL, SPRING, SUMMER. [3].

MENT3882 - Summer Music Internship
Course Description

Academic research and writing related to a co-requisite internship experience under the direction of a faculty sponsor. Prerequisite: 2.9 GPA, sophomore standing, and approval of project prospectus by faculty sponsor and by Associate Dean. Offered on a pass/fail basis only. May be repeated for credit, up to 1 credit per semester of enrollment. SUMMER. [1].

Music Composition

COMP1000 - Composition Studio Class
Course Description

Weekly observation and participation. Required of all composition majors, including musical arts and integrated studies. Offered on a pass/fail basis. [0] Slayton, Link, Kurek, Michael Rose.

COMP1100 - Composition Workshop
Course Description

Collaborative workshop specifically designed for non-composition majors and/or non-music majors. Includes introduction to compositional techniques, study of composers and their works, principles of scoring and the study of notation, including experimental types. Prerequisite or Corequisite: MUTH 1210 or MUTH 2200.

COMP1150 - Composition (Elective/Minor/Concentration)
Course Description

Individual instruction and seminars. A variety of media, styles, and forms. Electronic and experimental techniques. Prerequisite: COMP 1100 and/or departmental approval. [Variable credit: 1-3 each semester]

COMP2100 - Intermediate Composition (B.Mus.Arts and Integrated Studies First-Years/Sophomores)
Course Description

Individual instruction and seminars. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to B.Mus.Arts and integrated studies composition majors. [2]

COMP2301 - Intermediate Composition I (Composition Majors Freshmen/Sophomores)
Course Description

Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition majors; instructor as assigned. [2] Link, Michael Rose, Slayton.

COMP2302 - Intermediate Composition II (Composition Majors Freshmen/Sophomores)
Course Description

Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition majors; instructor as assigned. Prerequisite: COMP 2301. [2] Link, Michael Rose, Slayton.

COMP2303 - Intermediate Composition III (Composition Majors Freshmen/Sophomores)
Course Description

Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition majors; instructor as assigned. Prerequisite: COMP 2302.

COMP2304 - Intermediate Composition IV (Composition Majors Freshmen/Sophomores)
Course Description

Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition majors; instructor as assigned. Prerequisite: COMP 2303. [3] Link, Michael Rose, Slayton.

COMP3978 - Junior Thesis
Course Description

Completion of an extended paper based upon musical analysis. Open only to composition majors. Topic subject to approval. Progress monitored via tutorials. Completion of Junior Thesis is a pre-requisite for COMP 4970 and COMP 4303. [1] Kurek, Link, Michael Rose, Slayton.

COMP4100 - Advanced Composition (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction and seminars. A variety of media, styles, and forms. Electronic and experimental techniques. Only open to B.Mus.Arts and Integrated Studies Juniors/Seniors.

COMP4301 - Advanced Composition I (Composition Majors Juniors/Seniors)
Course Description

Continuation of 2301-2304. Open only to composition majors. A 4th credit may be elected with instructor approval for focused opportunities such as analysis, repertoire study, etc. Prerequisite: COMP 2304. [3-4 each semester] Link, Michael Rose, Slayton.

COMP4302 - Advanced Composition II (Composition Majors Juniors/Seniors)
Course Description

Continuation of 2301-2304. Open only to composition/theory majors. A 4th credit may be elected with instructor approval for focused opportunities such as analysis, repertoire study, etc. Prerequisite: COMP 4301. [3-4 each semester] Link, Michael Rose, Slayton.

COMP4303 - Advanced Composition III (Composition Majors Juniors/Seniors)
Course Description

Continuation of 2301-2304. Open only to composition/theory majors. A 4th credit may be elected with instructor approval for focused opportunities such as analysis, repertoire study, etc. Prerequisite: COMP 4302, COMP 3978. [3-4 each semester] Link, Michael Rose, Slayton.

COMP4304 - Advanced Composition IV (Composition Majors Juniors/Seniors)
Course Description

Continuation of 2301-2304. Open only to composition majors. A 4th credit may be elected with instructor approval for focused opportunities such as analysis, repertoire study, etc. Prerequisite: COMP 4303. [3-4 each semester] Link, Michael Rose, Slayton.

COMP4970 - Senior Composition Recital
Course Description

Planning, rehearsing, and performing in a concert devoted solely to a student's own work. Open only to composition majors. Corequisite: COMP 4303. [1] Kurek, Link, Michael Rose, Slayton.

Music Pedagogy

MPED3110 - Piano Pedagogy
Course Description

Principles and procedures of teaching piano. Individual and group instruction techniques observed and discussed. Practicum with private students. Designed for B.Mus. and B.Mus.Arts piano majors. Permission of instructor required. FALL. [2] (Offered alternate years)

MPED3120 - Suzuki Violin Pedagogy
Course Description

Principles and procedures of teaching violin using the Suzuki Violin School, books 1-4. Individual and group instruction techniques observed and discussed. Designed for junior or senior violin/viola students. Violin for class use required. Open by consent of instructor. FALL [3] (Offered alternate years)

MPED3121 - Suzuki Violin Pedagogy
Course Description

Principles and procedures of teaching violin using the Suzuki Violin School, books 1-4. Individual and group instruction techniques observed and discussed. Designed for junior or senior violin/viola students. Violin for class use required. Open by consent of instructor. Prerequisite: MPED 3120. SPRING [3] (Offered alternate years)

MPED3125 - Violin/Viola Pedagogy
Course Description

Principles and procedures of teaching violin and viola. Emphasis on pedagogical literature and specific teaching techniques. Practicum with private students. Prerequisite: B.Mus. and B.Mus.Arts students with completion of four semesters of 2100 or 2200 in violin or viola. [2]

MPED3127 - Cello Pedagogy
Course Description

Early cello pedagogy, with strong emphasis on the major pedagogical influences of Suzuki. Prerequisite: B.Mus. and B.Mus.Arts students with completion of four semesters of CLLO 2100 or 2200.

MPED3128 - Harp Pedagogy
Course Description

Principles and procedures of teaching harp. Emphasis on pedagogical literature and specific teaching techniques. Prerequisite: B.Mus. and B.Mus.Arts students with completion of 4 semesters of HARP 2100 or 2200, or permission of instructor. FALL

MPED3129 - Bass Pedagogy
Course Description

Principles and procedures of teaching bass. Emphasis on pedagogical literature and specific teaching techniques. Practicum with private students. Prerequisite: B.Mus. and B.Mus.Arts students with completion of four semesters of BASS 2100 or BASS 2200.

MPED3130 - Vocal Pedagogy
Course Description

Principles and procedures of teaching voice. Psychological and physiological approaches. Practicum with private students. Corequisite: VOIC 4100 or VOIC 4200 FALL. [2]

MPED3140 - Woodwind Pedagogy
Course Description

Principles and procedures of teaching woodwind instruments. Emphasis on pedagogical literature and specific teaching techniques. Prerequisite: B.Mus. and B.Mus.Arts students with completion of four semesters of 2100 or 2200 in major instrument, or permission of instructor. [2]

MPED3142 - Brass Pedagogy
Course Description

Principles and procedures of teaching brass instruments. Emphasis on pedagogical literature and specific teaching techniques. Prerequisite: B.Mus. and B.Mus.Arts students with completion of two semesters of 2100 or 2200 in a brass instrument, or permission of instructor. Fall. [2]

MPED3144 - Percussion Pedagogy
Course Description

Principles and procedures of teaching percussion instruments. Emphasis on pedagogical literature and specific teaching techniques. Prerequisite: B.Mus. and B.Mus.Arts students with completion of four semesters of PERC 2100 or 2200.

MPED3870 - Pedagogy Practicum
Course Description

Principles and procedures of private teaching. Reading and research under the direction of a faculty sponsor, consistent with requirements for Independent Study. Practicum with private students. Consent of the faculty sponsor is required. Repeatable for credit, variable 1-2 hours each semester. [1-2] Staff.

MPED3880 - Pedagogy Internship
Course Description

Focused experience in the teaching of performance under the direction of a faculty sponsor in that performance area (consent required). Involves a specific program of regular consultation between student and supervising teacher. Open only to students seeking concentration in pedagogy. Prerequisite: MREP 3310 or 3311, 3300, 3330, or MUSO 3850 (in field) and MPED 3110, 3100, or 3130 or MUSO 3850 (in field). [Repeatable for credit, variable 1-3 hours each semester.] Staff.

Music Repertoire/Literature

MREP2110 - Brass Orchestral Repertoire
Course Description

Exploration of the standard orchestral repertoire with emphasis on the late Romantic period. Performance of selected excerpts, coached and conducted. May be repeated for credit.

MREP2120 - Orchestral Repertoire for Percussion
Course Description

Exploration of the standard orchestral repertoire for percussion instruments, exclusive of timpani, with emphasis on score analysis, instrument selection, and performance techniques. Selected excerpts coached and conducted.

MREP2121 - Orchestral Repertoire for Timpani
Course Description

Exploration of the standard orchestral repertoire for timpani. Emphasis on score analysis, editing, stick selection, and performance practice. Selected excerpts coached and conducted.

MREP2130 - String and Harp Orchestral Repertoire
Course Description

Analysis and coaching of the standard orchestral repertoire, including opera and ballet, with emphasis on style and technical problems. Selected excerpts in like instrument groups (violin, viola, cello, bass, harp). May be repeated for credit.

MREP2140 - Woodwind Orchestral Repertoire
Course Description

Exploration of the standard orchestral repertoire with emphasis on performance practice. Performance of selected excerpts, coached and conducted. Not recommended for first-year students. May be repeated for credit.

MREP2141 - Saxophone Orchestral and Wind Band Repertoire
Course Description

Exploration of the standard orchestral and wind band repertoire with emphasis on performance practice. Performance of selected excerpts, coached and conducted. Not recommended for freshmen. Prerequisite: B.Mus. and B.Mus.Arts students or permission of instructor. [1]

MREP2150 - Survey of Orchestral Repertory: From Monteverdi to the Dawn of Modernism
Course Description

A course which exposes student musicians to a broad selection of important works from 1624-1934 (with occasional vocal or chamber pieces for added context), with an emphasis on their basic musical features and cultural importance. Composers examined include Vivaldi, Bach, Haydn, Mozart, Beethoven, Schubert, Tchaikovsky, Mahler, Stravinsky, Dawson, Barber, and Crawford Seeger.

MREP3310 - Piano Literature I
Course Description

A survey of works for piano from the seventeenth through the nineteenth centuries, within the context of historical perspective, stylistic awareness, and pianism. Designed primarily for piano majors.

MREP3311 - Piano Literature II
Course Description

A survey of works for piano from the nineteenth through the twenty-first centuries, within the context of historical perspective, stylistic awareness, and pianism. Designed primarily for piano majors.

MREP3330 - Vocal Literature
Course Description

Survey of literature for solo voice from the seventeenth century to the present, with focus on traditional art songs of the great masters of the genre. Prerequisite: MUTH 2300, MUSL 2200W. Corequisite: VOIC 4100 or VOIC 4200.

Music Teacher Education

MUED1010 - Woodwind Methods
Course Description

Development of performance skills and teaching methods for flute, clarinet, oboe, bassoon, and saxophone. Includes teaching techniques and problems relative to woodwind instruments, care and minor repairs, and instructional materials. Open only to B.Mus. students; or permission of instructor. FALL. [1] Utley.

MUED1020 - Brass Methods
Course Description

Development of performance skills and teaching methods for trumpet, french horn, trombone, euphonium, and tuba. Includes teaching techniques and problems relative to brass instruments, care and minor repairs, and instructional materials. Open only to B.Mus. students; or permission of instructor. SPRING. [1]

MUED1030 - Strings Methods
Course Description

Development of performance skills and teaching methods for violin, viola, cello, and double bass. Includes teaching techniques and problems relative to string instruments, care and minor repairs, and instructional materials. Open only to B.Mus. students; or permission of instructor. FALL. [1] Bingham.

MUED1040 - Percussion Methods
Course Description

Development of performance skills and teaching methods for snare drum, timpani, mallet instruments, and other percussion instruments. Includes teaching techniques and problems relative to all percussion instruments, care and minor repairs, and instructional materials. Open only to B.Mus. students; or permission of instructor. FALL. [1] Vinson.

MUED1080 - Piano Skills for the Music Educator
Course Description

Focused study in score reading, sight reading, and collaborative techniques to prepare for classroom teaching. Includes vocal and instrumental repertoire. [1]

MUED2100 - Introduction to Music Education
Course Description

{Previously MUED 2010} Focus on lesson planning, proper teaching sequences, observation techniques, classroom instruments, and verbal/non-verbal instruction. First in a sequence of three methods-based courses in teaching music. Open to all B.Mus. students. [3] T. Biddlecombe

MUED2110 - Seminar in Choral Literature and Arranging
Course Description

Teaching techniques, knowledge of choral repertoire, and arranging skills as applicable to K-12 choral programs. Tonal, harmonic, and melodic analysis, score marking and preparation, revoicing, and classroom concerns. Repertoire drawn from the American Choral Directors Association reading lists, All-State honor choir lists, and other applicable sources to encompass a broad range of genres, styles, levels of difficulty, ethnicities, and musical periods. Prerequisite: MUTH 2200 and approval of instructor. SPRING. [3] M. Biddlecombe. (Offered alternate years)

MUED2120 - Seminar in Teaching Orchestra
Course Description

Instructional strategies for string and full orchestras from the middle school through high school and youth orchestra levels. Topics to include rehearsal techniques, repertoire, materials, secondary string class instruction, and performance practices. Prerequisite: MUED 1030 and MCON 3000, or permission of instructor. SPRING. [2] (Offered alternate years.)

MUED2130 - Seminar in Orff/Kod√°ly Methods
Course Description

Teaching general music with emphasis on Orff and Kod√°ly principles and practices. Planning, instruction, and evaluation using techniques and materials from a variety of sources. FALL. [2] Ramsey. (Offered alternate years)

MUED2140 - Seminar in Teaching Jazz Styles
Course Description

Principles and practices for teaching instrumental jazz styles. Rehearsal techniques (including observation), repertoire, jazz education philosophies, and stylistic elements for soloists, combos, and larger ensembles. MUED 2140 satisfies pedagogy requirement for Jazz Studies Majors. Prerequisite: MUSO 1220 or permission of instructor. SPRING. [2] Middagh.

MUED2150 - Seminar in Teaching Marching Band
Course Description

Techniques and materials for Marching Band instruction. Organization, administration, literature, technology, auxiliary groups. Planning, writing, arranging and teaching halftime performances. Prerequisite or corequisite: MCON 3000 or permission of instructor; corequisite: participation in marching band. FALL. [2]

MUED2180 - Seminar in Inclusive Inquiry in Music Education
Course Description

A focus on leading future music educators through a process of reflection on marginalized peoples, practices in the field of music education that lead to marginalization, and strategies for improved and increased inclusion in school music programs. To this end, a critical lens will be used to examine the culture, norms, traditions, and practices inherent in American music education. [2]

MUED3010 - Intermediate Instrumental Methods and Materials
Course Description

Topics include applied teaching techniques, primary and early secondary band/orchestra literature, and lesson planning. Second in a sequence of three methods-based courses in teaching music. Prerequisite: MUED 2100 (previously listed as 2010). [2]

MUED3020 - Intermediate Choral Methods and Materials
Course Description

Topics include rote teaching, primary and early secondary choral literature, vocal modeling, intermediate sequencing, and solfege implementation. Second in a sequence of three methods-based courses in teaching music. Prerequisite: MUED 2100 (previously listed as 2010). [2]

MUED3870 - Practicum in Music Teaching
Course Description

Observation, participation, and supervised music teaching in a variety of school, grade level, and instructional music settings, designed to integrate and apply musical knowledge and teaching skills developed within the degree program. Weekly seminar included. Includes SMART music studio technology and GarageBand technology. SPRING. [1]

MUED3871 - Practicum in Music Teaching II
Course Description

Observation, participation, and supervised music teaching in a variety of school, grade level, and instructional music settings, designed to integrate and apply musical knowledge and teaching skills developed within the degree program. Weekly seminar included. Prerequisite: MUED 3870. SPRING. [1]

MUED3872 - Practicum in Music Teaching III
Course Description

Observation, participation, and supervised music teaching in a variety of school, grade level, and instructional music settings, designed to integrate and apply musical knowledge and teaching skills developed within the degree program. Weekly seminar included. Prerequisite: MUED 3871 and any two from MUED 2110-2170. SPRING. [1]

MUED3880 - Experiential Instruction in Music I
Course Description

Field-based experience with a precollege ensemble or university band organization. Experience will include classroom preparation, leading sectionals or portions of rehearsals, and/or other appropriate activities as assigned by the lead teacher. Attendance at culminating performance is required. [.5] Biddlecombe.

MUED3881 - Experiential Instruction in Music II
Course Description

Field-based experience with a precollege ensemble or university band organization. Experience will include classroom preparation, leading sectionals, leading portions of rehearsals, and/or other appropriate activities as assigned by the lead teacher. [.5]

MUED3882 - Experiential Instruction in Music III
Course Description

Field-based experience with a precollege ensemble or university band organization. Experience will include classroom preparation, leading sectionals or portions of rehearsals, and/or other appropriate activities as assigned by the lead teacher. Attendance at culminating performance is required. [1]

Music Theory

MUTH1111 - First-Year Writing Seminar - Music in Fiction
Course Description

Considers meanings of music in contemporary fiction by way of representative music and literature. Includes consideration of classical, jazz, hip-hop, and popular music in short stories and novels. Familiarity with musical notation is expected.

MUTH1135 - Mozart
Course Description

The music of Wolfgang Amadeus Mozart. Techniques for listening to different genres of classical music. Emphasis on style and structure, music theory and history, and Mozart's life and character. No musical background assumed. Does not count toward major or minor in music. SPRING. [3]

MUTH1200 - Survey of Music Theory
Course Description

Presents 18th- to 20th-century harmonic practice. Designed to develop music theory skills through written exercises of figured and unfigured basses; harmonization of melodies; and study of ear training, using sight-singing exercises and melodic and harmonic dictation. Not open to students who have completed MUTH 2100 or 2200. Does not count toward a major in music. [3] Bingham.

MUTH1210 - Survey of Music Theory
Course Description

Presents 18th- to 20th-century harmonic practice. Designed to develop music theory skills through written exercises of figured and unfigured basses; harmonization of melodies; and study of ear training, using sightsinging exercises and melodic and harmonic dictation. Prerequisite: MUTH 1200. Not open to students who have completed MUTH 2100 or 2200. Does not count toward a major in music. [3] Bingham.

MUTH2100 - The Syntax of Music
Course Description

Basic elements of music and notation (including computer notation), introduced through a wide variety of styles. Includes non-tonal and non-Western repertoire. Reinforcement of the elements of MUTH 2110/Aural Skills Level I throughout. B.Mus. and B.Mus.Arts students enrolled in MUTH 2100 should also be enrolled in MUSO 1340. Corequisite: MUTH 2110. FALL. [2]

MUTH2110 - Aural Skills in Tonal Practice (I)
Course Description

Study via guided improvisation, lecture, performance, and notation exercises: intervals, modes, triads, dominant seventh chords, diatonic tonality, major and minor keys and degree function, various systems of solfege and number, harmonization, notation and performance of simple rhythmic textures. Corequisite: MUTH 2100. FALL [1]

MUTH2200 - Harmonic Idioms of the Common Practice Period
Course Description

Principles of harmonic progression in the context of music from the common practice period. Includes figured bass realization, harmonization, analysis, composition, contrapuntal idioms, modulation. B- or above in MUTH 2100 is required. Prerequisite: MUTH 2100; corequisite: MUTH 2220.

MUTH2220 - Aural Skills in Tonal Practice (II)
Course Description

Study via guided improvisation, lecture, performance, and dictation: chromatic function in melody, inversion, seventh chords, tonicization and modulation, common chromatic substitutions, transposition, hearing form, notation and performance of complex rhythmic textures. Prerequisite: MUTH 2110; corequisite: MUTH 2200.

MUTH2300 - Musical Expansions: the Twentieth Century to the Present
Course Description

Late-Romantic, modernist, and postmodern compositional practices, including freely chromatic and non-functional harmony, ordered and unordered sets, post-tonal formal design, contemporary rhythmic devices, indeterminacy, and quotation. Prerequisite: C- or above in MUTH 2200; corequisite: MUTH 2330.

MUTH2330 - Aural Skills in Non-Tonal Practices
Course Description

Study via sight-singing, dictation, score-reading, listening, improvisation, and lecture: 20th-century scale forms, modes of limited transposition, serialism, free atonality, common atonal trichords, notation and performance of advanced rhythmic textures. Prerequisite: MUTH 2220; corequisite: MUTH 2300.

MUTH2400 - Elements of Analysis
Course Description

A study of analytical concepts and methodologies applied to harmonic, rhythmic, and structural aspects of diverse musical practices and styles. Approaches to interpreting and creating musical meaning through listening and/or score study. Prerequisite: C- or above in MUTH 2300.

MUTH2440 - Aural Skills & Performance Readiness
Course Description

The use of Aural Skills as a lens into practical performance psychology. A broad survey of readings for discussion, performance exercises with group feedback, private coachings, and journaling will offer participants a chance to discover their own optimal mindset for calm, dependable performance. Counts as a Semester 4 Special Topics seminar in the Aural Skills core. Prerequisite: MUTH 2330.

MUTH2441 - Aural Skills and the Choral Professional
Course Description

Application of Aural Skills to choral professionals: choral section leaders in church and symphony choruses, secondary and college-level choral conductors, etc. Focus on choral works of the 20th and 21st centuries, analysis, rhythmic exercises, rehearsal organization, and sight-singing skills critical for communication between conductor and choir. Counts as a Semester 4 Special Topics seminar in the Aural Skills core.

MUTH2442 - Aural Skills in Application to Rehearsal, Teaching, and Performance
Course Description

Application of Aural Skills to musical situations encountered outside of class: individual preparation, teaching, coaching, and ensemble skills in rehearsal and performance. Focus on Aural Skills as practice method, students' instrumental and/or vocal repertoire, solfège methods, pedagogy, and score-study for high level artistry in performance. Counts as a Semester 4 Special Topics seminar in the Aural Skills core.

MUTH2443 - Advanced Fundamentals of Aural Skills
Course Description

Comprehensive review of skills studied in MUTH 2110, 2220, and 2330 with the goal of enhanced mastery. Focus on a fluency-based model to develop high levels of skill and real-time perception of rhythm, meter, intervals, chords, and harmony. Counts as a semester four special topics seminar in the Aural Skills core.

MUTH3100 - Individual Theory Instruction (Elective)
Course Description

Individual instruction and seminars. Score analysis and style-study composition. Prerequisite: MUTH 2400 and consent of instructor. May be repeated for credit. [Variable credit: 1-3 each semester] Music theory faculty.

MUTH3110 - Orchestration
Course Description

Technical and aesthetic considerations in composing or transcribing for individual orchestral instruments, sections, and full orchestra. Score analysis and composition projects. Prerequisite: B- or above in MUTH 2100.

MUTH3120 - Jazz Theory
Course Description

An exploration of harmonic syntax, melodic construction, and song forms in jazz. Includes analysis, directed listening, and practice hearing jazz chords and chord progressions. Prerequisite: MUTH 1210 or 2200.

MUTH3130 - Techniques of Choral Composition
Course Description

Technical and aesthetic considerations involved in arranging and composing for combinations of voices, from two-part to larger choral ensembles, accompanied and unaccompanied. Score analysis and composition projects. Prerequisite: MUTH 2200 or consent of instructor. SPRING. [3] Carl Smith. (Offered alternate years)

MUTH3140 - Historical Traditions in Composition and in Performance
Course Description

Topical approach to historical performance traditions, 1610-1897, addressed through musical analysis and through study of historical performance styles. Emphasis on application of these interpretive skills to live performance. Prerequisite: MUTH 2200. FALL [3]. Carl Smith.

MUTH3150 - Early Keyboard Literature
Course Description

Keyboard music from the late fifteenth to the early eighteenth century. Compositional techniques and performance practices; study of period instruments; literature for clavichord, harpsichord, organ, and fortepiano. FALL. [2] Carl Smith. (Offered alternate years)

MUTH3160 - 16th-Century Counterpoint
Course Description

Principles of voice leading and linear structure through the study of 16th-century counterpoint. Graduated composition exercises, performance, repertoire analysis, historical approaches to theory, study of text setting, meter, and form. Prerequisite: MUTH 2400.

MUTH3170 - Techniques of Composing for Media
Course Description

Techniques for effective composing for media such as film, television, games, and Internet, including composing with virtual instruments, digital audio mixing and synchronizing to video. Creation of a 5-7 minute original sound track or film composing demo reel. Prerequisite: COMP 1100 or MUTH 2400 or permission of instructor. FALL. [2] Kurek.

MUTH3180 - Musical Instruments, Acoustics, and the Creative Musician
Course Description

Musical Instruments, Acoustics, and the Creative Musician. In this course we focus on the meeting point of the physics of sound, musical instrument materials, and human creativity. We will consider such topics as overtones, subharmonics, sound synthesis, instrument design, tuning and temperament systems, perception and illusion, and the embodied experience of the performer. We explore the relationship between science and culture and look at how the physical shape of instruments influences art (and how art shapes instruments). Throughout the course, we are guided by creativity and innovation by drawing upon musical repertoire and instrumental performance practices. Enrolled students will be selected randomly from the wait list after they have demonstrated minimum qualifications via a short quiz. Students must have a basic understanding in both music and math. On the music side, a comfort with basic music note reading and the elements of Western music (intervals, scales, rhythms). On the math side, comfort with precalculus, including basic trig, logs, and exponentials.

MUTH3200 - Chromatic Harmony in the Romantic Era
Course Description

Intensive analysis of challenging standard repertoire by three generations of Romantic composers, whose ingenious extensions of Classic period strategies of tonal organization require interpretive tools beyond the scope of the core theory curriculum. Investigation of both large and small forms. Focus on relationships between harmonic and structural symmetries. Prerequisite: MUTH 2300. [3]

MUTH3210 - Post-tonal Analysis
Course Description

Exploration of the post-tonal analytical techniques through intensive study of selected works of composers from the early 20th century to the present, including Debussy, Scriabin, Schoenberg, Berg, Webern, Stravinsky, Copland, Dallapiccola, Boulez, Cage, Berio, Feldman, Lachenmann. Prerequisite: MUTH 2400. SPRING. [2] Slayton. (Offered alternate years.)

MUTH3220 - Musical Explorations: Bart√≥k
Course Description

Indepth study of the life and music of B√©la Bart√≥k; includes detailed investigation of salient theoretical concepts, formal structures, and the composer's integration of various regional folk musics into his own works. Prerequisites: MUTH 2400 or permission of instructor. SPRING [2] Slayton

MUTH3222 - Musical Explorations: Britten
Course Description

An introduction to the music of Benjamin Britten through close analysis of representative compositions and exploration of the composer's substantial recorded legacy. Focus on the formal and theoretical aspects of Britten's work with a detailed consideration of how musical resources and compositional techniques are employed to suggest a sense of place. Prerequisite: MUTH 2400 or permission of instructor. SPRING. [2] Deakin.

MUTH3230 - Electronic Music for Composers
Course Description

This course provides composers with a range of approaches for creating electronic music. Students will focus on historical context, technical concepts, and new hardware and software programs through hands-on creative projects.

MUTH3450 - Advanced Aural Skills Seminar 1
Course Description

Direct application of Aural Skills at more demanding levels, as well as reinforcement of existing knowledge from the Aural Skills core. Focus on score reading, practice strategies, performance, dictation, and analysis. Prerequisite: one course from MUTH 2440-60.

MUTH3460 - Advanced Aural Skills Seminar 2
Course Description

Direct application of Aural Skills at more demanding levels. Focus on score reading, practice strategies, performance, dictation, and analysis. Prerequisite: MUTH 3450.

MUTH3470 - Advanced Aural Skills Seminar 3
Course Description

Direct application of Aural Skills at more demanding levels. Focus on score reading, dictation, performance psychology, audition preparation, and Aural Skills as it pertains to career strategy. Prerequisite: MUTH 3460.

MUTH3480 - Advanced Aural Skills Seminar 4
Course Description

Direct application of Aural Skills at more demanding levels. Focus on score reading, dictation, performance psychology, audition preparation, and Aural Skills as it pertains to career strategy. Prerequisite: MUTH 3470.

MUTH3890 - Special Topics in Music Theory
Course Description

Advanced study in theory, focused on various topics from year to year, including such areas as advanced counterpoint, analysis of a specific composer, Schenkerian analysis, etc. Prerequisite: varies by topic. [2 or 3, as listed.] Music theory faculty.

Musicians' Wellness

MWEL1120 - The Alexander Technique I
Course Description

An accurate kinesthetic sense of the structure and movement of the body through hands-on and verbal instruction in body mapping and the principles developed by F. M. Alexander. Emphasis on ordinary daily activities. Offered on a pass/fail basis only. FALL, SPRING. [1] Ahner.

MWEL1121 - The Alexander Technique II
Course Description

Further exploration of the principles of the technique applied to daily activities and developmental movement. Emphasis on individual experiences within the context of the class. Offered on a pass/fail basis only. Prerequisite: MWEL 1120. FALL, SPRING. [1] Ahner.

MWEL1130 - Meditation for Musicians
Course Description

A practice-centered approach helps students develop a regular meditation routine. Each weekly session involves meditation, in-class reading, listening, and performance. Offered on a pass/fail basis.

MWEL1140 - Tai Chi for Musicians
Course Description

Principles of Tai Chi applied to musical performance. The practice and understanding of anatomical movement, with emphasis on prevention of injury. Offered on a pass/fail basis.

MWEL1150 - Chakra Yoga
Course Description

tudy of the seven chakras, or energy centers, of the body. Emphasis on aligning the chakras through gentle yoga practice (beginner level), and cultivating student well-being. Offered on a pass/fail basis. FALL, SPRING. [1]

MWEL2120 - The Performer and the Body
Course Description

Application of the Alexander Technique in a small group setting with attention to aspects of musical performance, including practice skills and performance anxiety. Offered on a pass/fail basis. May be repeated once for credit. Prerequisite: MWEL 1120. B.Mus. and B.Mus.Arts students or permission of the instructor. [1] FALL.

Musicianship

MUSC2100 - Musicianship Level I
Course Description

Examination of the sound properties of pitches, intervals and rhythms and their notation in real time. Focus is on diatonic scales and modes. Lectures, discussion, real-time listening experiences, dictation, sight-singing, score reading, and improvisation are integrated throughout the course. Corequisite: MUTH 2100. FALL. [1] McGuire, Williams.

MUSC2200 - Musicianship Level II
Course Description

Continuation of Musicianship Level I. Focus on the employment of pitches, intervals and rhythms in functional tonal contexts. Lectures, discussion, real-time listening experiences, dictation, sight-singing, score reading, and improvisation are integrated throughout the course. Prerequisite: MUSC 2100; corequisite: MUTH 2200. SPRING. [1] McGuire, Williams.

MUSC2300 - Musicianship Level III
Course Description

Continuation of Musicianship II. Focus on tonal modulation and chromaticism. Lectures, discussion, real-time listening experiences, dictation, sight-singing, score reading, and improvisation are integrated throughout the course. Prerequisite: MUSC 2200; corequisite: MUTH 2300. FALL. [1] McGuire.

MUSC2400 - Musicianship Level IV
Course Description

Continuation of Musicianship III. Focus on the employment of pitches, intervals and rhythms in non-tonal contexts. Lectures, discussion, real-time listening experiences, dictation, sight-singing, score reading, and improvisation are integrated throughout the course. Prerequisite: MUSC 2300; corequisite: MUTH 2400. SPRING. [1] McGuire.

MUSC3105 - Advanced Musicianship V
Course Description

Further development of aural skills, including techniques for hearing, singing, reading, and writing tonal and atonal music in real time. Prerequisite: MUTH 2440, 2441, or 2442. FALL. [1]

MUSC3106 - Advanced Musicianship VI
Course Description

Further development of aural skills, including techniques for hearing, singing, reading, and writing tonal and atonal music in real time. Prerequisite: MUSC 3105. SPRING. [1] Ploger.

MUSC3107 - Advanced Musicianship VII
Course Description

A continuation of techniques studied in MUSC 3106. Hearing in tonal and atonal music, including extended harmonic and melodic structures, complex rhythmic elements, and score reading. Discussion of pedagogical approaches to teaching aural studies. Prerequisite: MUSC 3106. FALL. [1] Ploger

MUSC3108 - Advanced Musicianship VIII
Course Description

A continuation of techniques studied in MUSC 3107. Hearing in tonal and atonal music, including extended harmonic and melodic structures, complex rhythmic elements, and score reading. Discussion of pedagogical approaches to teaching aural studies. Prerequisite: MUSC 3107. SPRING. [1] Ploger

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Musicology/Ethnomusicology

MUSL1100 - World Music
Course Description

World music as a cultural product; selected musics of Africa, Native America, India, Indonesia, and African America. Topics include music and religion, popular music, field work methodology, and gender issues. Not open to students who have completed MUSL 2100. FALL. [3] Fry.

MUSL1105 - African Music
Course Description

A survey of selected traditional and popular music of Africa. Historical, social, and cultural contexts; listening; some performances in class. SPRING. [3]

MUSL1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through class discussion, oral presentations, and written expression. Topics vary. Open to freshmen only. FALL. [3] Musicology and Ethnomusicology faculty.

MUSL1200 - Introduction to Western Classical Music
Course Description

An introduction to the literature of music from AD 600 to the present through a study of selected works. Extensive listening is required. Not open to students who have completed MUSL 2200W. Counts toward a minor, but not a major, in music. [3]

MUSL1210 - The Concerto
Course Description

A close study of representative works, from the Baroque invention of the concerto principle up to modernist and contemporary adaptations. Focus on structural listening. No previous training in music required. FALL. [3] Michael Rose. (Offered alternate years)

MUSL1220 - The Symphony
Course Description

A course which will examine symphonies from the Western Classical tradition. Lectures and class discussions focus on the music's content and cultural context. Ability to follow a musical score required.

MUSL1240 - Opera for Everyone
Course Description

An introduction to opera for non-music majors who want to listen and watch for pleasure as well as critical engagement. The ability to read a score is not required. [3]

MUSL1300 - Music, the Arts, and Ideas
Course Description

The changing historical relationships among music, literature, fine arts, and philosophy. Musical developments as responses to social, political, and economic circumstances. FALL. [3] Link.

MUSL1310 - Love and Death in Music
Course Description

Perspectives on two great problems of human life throughout the history of Western music. Themes include idealized love, sexual pathology, love and realism, love of God, confronting death, transcending death. Connections of music to visual arts, literature, film. No musical background required. [3] Michael Rose. (Offered alternate years)

MUSL1320 - The Music of the Outliers
Course Description

Seminar centering on the music of composers who were/are unorthodox in their thinking, who resisted prescribed notions of what music is and challenged the world around them to think about sound in new ways. Topics include the "reactionary" climate of the 20th century; modernism and post-modernism; electronics in music; minimalism and microtonalism; performance art and "Art-Pop." Not open to students who have completed MUTH 2400. Does not count toward a major in music. No prior experience in music necessary. Maymester [3] Slayton

MUSL1330 - Cross-Currents in Music and Art
Course Description

Survey of selected pairings or groupings of artists and composers through four centuries of art and music in Europe and the United States. [3] Michael Rose.

MUSL1340 - Music, Sports, and Society
Course Description

This course explores the intersection of sports and music, broadly defined, in 20th- and 21st-century U.S. contexts, with some attention to global convergences of athletics and music. [3]

MUSL1600 - American Popular Music
Course Description

Historical study of ways the culture of a nation is reflected and sometimes shaped by the chosen musics of the groups comprising the American "salad bowl." Topics include audience reception; production and consumption; multiculturalism; and meaning.

MUSL1610 - Musical Theatre in America: A Cultural History
Course Description

From eighteenth century melodrama and vaudeville through the musicals of the 1940s and 1950s to the contemporary emphasis on integration of spectacle, dance, and other theatrical arts. Readings, live productions, guest lecturers, and film. SPRING. [3] Lovensheimer. (Offered alternate years.)

MUSL1620 - Survey of Jazz
Course Description

A survey of jazz history, with particular attention to the major composers, "Jelly Roll" Morton, Duke Ellington, and Thelonius Monk, who gave the music synthesis and form; and to its major innovative soloists, Louis Armstrong, Charlie Parker, and Ornette Coleman, who renewed its musical language. FALL, SPRING. [3] Fry.

MUSL1630 - The Blues
Course Description

Downhome, classic, Chicago, and urban blues-history, musical structure, musical styles, singers' lives, and meanings of blues lyrics. The current blues revival, blues and tourism, race and revisionist blues scholarship, and the relation of blues to African American poetry and fiction. Artists such as Ma Rainey, Charley Patton, Robert Johnson, Lightnin' Hopkins, Muddy Waters, B.B. King, Buddy Guy, Robert Cray. SPRING. [3] Fry.

MUSL1640 - Country Music
Course Description

A musical and cultural survey of the talents, traditions, and trends of country music from its Colonial roots to its current status as a multi-million dollar global industry. Focus on the music, creators, and performers of that music and its cultural and social contexts. FALL, SPRING. [3] Cooper.

MUSL1650 - History of Rock Music
Course Description

History and development of rock and roll music and its performance from the 1950s to the present. Major artists from each decade, subgenres (rockabilly, R&B, folk, soul, metal, pop, alternative, etc.), and technological, cultural, and economic developments that helped shape the music. FALL, SPRING. [3] Gunderman.

MUSL1660 - Music and Tourism: Music City Museum & Memorabilia
Course Description

An exploration of the intersection between popular music and tourism. Music landmarks as tourist attractions, music memorabilia and museums, tourism and urban development, souvenirs as travel credentials, and tourism and issues of representation. FALL. [3] Fry.

MUSL1670 - Survey of American Hip Hop
Course Description

This course examines the history of hip hop and culture from the 1970s to the present, including current debates and discussions. It explores the dynamics of hip-hop culture regarding its historical development, political influence and social impact, particularly in American culture. This class also explores relevant issues surrounding race, gender, cultural relations, economics and social barriers relating to hip-hop music and culture. Discussions will include the coexistence of various hip hop styles and the exploitation of this music and culture as a commodity for national and global consumption. [3] Chase

MUSL2100 - Music as Global Culture
Course Description

Music and musical cultures from around the world. Students will approach indigenous music theories on their own terms in order to understand and complement the complexities of contemporary Western Music performance styles and expectations. Emphasis on fundamental elements (e.g., rhythm, pitch, harmony, and form) of diverse musical practices. Transcription, notation, and analysis of a variety of melodic and rhythmic forms. Not open to students who have completed MUSL 1100. Prerequisite: Open to B.Mus. and B.Mus.Arts students, declared second majors, or with demonstrated musical literacy and permission of instructor.

MUSL2110 - Music in Latin America and the Caribbean
Course Description

An introduction to a wide variety of musical genres and traditions in Latin America and the Caribbean. Indigenous, folk, popular, and art music forms and their social function, meaning, historical development, cultural blending, and cross-hybridization. SPRING. [3] Simonett.

MUSL2120 - Music in Southeast Asia
Course Description

An introduction to the varied musical and performing cultures of Southeast Asia through historical and ethnographic perspectives. Court music traditions, music in religious rituals, dance and theater, popular and (western) art music practices in the region. Includes some hands-on learning of musical instruments and repertoire.

MUSL2150 - Music, Identity, and Diversity
Course Description

Issues of multiculturalism and intersections with musical expression in America. Cultural determinants, such as race, gender, ethnicity, class, religion, language, ideology, folklore, and history will be studied critically. Prerequisite: any MUSL course or AMER 1002. FALL. [3]

MUSL2200W - Music in Western Culture
Course Description

An overview of music in the Western art tradition, including its basic historical periods, styles, genres and disciplines. Tangible applications of historical, analytical, and cultural thinking to musical performance. Guided discussion, varied writing assignments, and presentations. Prerequisite: Open to B.Mus. and B.Mus.Arts students, declared music minors/second majors, or with demonstrated musical literacy and permission of instructor. SPRING. [3] Musicology faculty.

MUSL2310 - The Bible and Music
Course Description

An investigation of Biblical texts (Old Testament/Tanach; Deuterocanonical texts/Old Testament Apocrypha; New Testament) that have inspired musical settings and the musical settings themselves. Emphasis on literary and musical analysis and interpretation. No musical or scriptural background assumed. FALL. [3] Rose and Levine.

MUSL2320 - Exploring the Film Soundtrack
Course Description

Relationships among soundtrack, image, and narrative in film. The complex of music, sound, and dialog in a variety of American films, from silents to Hollywood blockbusters and cartoons. Topics include diegesis, temporality, continuity, and musical style. Discussion, video, and film research, reading, and listening. No musical background required. SPRING. [3] Link.

MUSL2330 - Words and Music
Course Description

An investigation of works of literature that have inspired musical settings and the musical settings themselves. Emphasis on literary and musical analysis and interpretation. No musical background assumed. Repeat credit for students who have completed ENGL 3736. [3] Michael Rose and Mark Jarman, Professor of English. (Spring)

MUSL2340 - Music in Narrative Fiction
Course Description

Exploration of music as an explicit narrative presence in fiction of the 20th and 21st centuries. Examination of the roles of music as plot device, symbol, setting, and character development as embodied in various genres including popular, classical, and jazz. Analysis of complete novels and short fiction combined with the theoretical, social, and historical analysis of music, with synthesis in creative responses. [3]

MUSL2350 - The Miracle of Venice: Sound, Space, Vision, and Power
Course Description

In perhaps no other country were the arts so intimately fused with a sense of national mission as in the Republic of Venice, a miniature semi-democratic nation-state which emerged during the death throes of the Roman Empire and which collapsed with the Napoleonic invasion of 1797. This course will celebrate and evaluate those magnificent works of music, architecture, art, and film produced by artists living in the city, and, increasingly after 1797, by fascinated foreigners. The class will combine elements of lecture, seminar, and independent study, designed to allow for the maximization of each student's interests, musical and otherwise. There is no formal prerequisite. [3]

MUSL2600 - American Music
Course Description

A history of music in the United States, 1620 to the present. Distinctly American musical traditions such as shape-notes, minstrelsy, jazz, twentieth-century syntheses. Recommended: MUSL 2200W or 1200, or music-reading skills sufficient to follow a score. FALL. [3] Lovensheimer.

MUSL2610 - Music of the South
Course Description

The musical riches of the American South approached from various perspectives, including the historical, cultural, social, political, and religious. Blues, country, and gospel are the primary genres of study; jazz, folk, and classical traditions in the South also receive attention. Prerequisite: any MUSL course or AMER 1002. FALL. [3] Fry. (Offered alternate years)

MUSL2620 - DIY Movements: Hip Hop, Punk, and the Democratization of America's Pop
Course Description

An exploration of the history, continuation, and aesthetics of the DIY music movement in the United States and abroad. A historical approach will be used, with an emphasis on important styles, artists, and social and cultural issues. Students will gain an understanding of hip hop and punk as musical and performative forms, how they are created, how they are interpreted, and how they are a direct expression of the cultural context in which they are produced. Prerequisite: any MUSL course. [3] Fry

MUSL3100 - Music of the 20th and 21st Centuries
Course Description

An exploration of the wealth and diversity of European and American art music since 1900. Emphasis on the historical, cultural, philosophical, and technological contexts that encourage an approach to this music on its own terms. Prerequisite: B.Mus. and B.Mus.Arts students and second majors, MUSL 2200W and 2100; music minors, MUSL 2200W or 1200; or permission of instructor.

MUSL3160 - Women and Rock Music
Course Description

An exploration of the ways that women have made their voices heard in rock on stage, in the studio, behind the scenes, and as fans. Prerequisite: Any MUSL or GSS course.

MUSL3213 - Artist, Community, and Democracy
Course Description

Communities of diverse artists, minority viewpoints, and cultural pluralism in a democratic society. Contemporary United States with cross-cultural and historical comparisons. [3]

MUSL3220 - Opera in the 17th and 18th Centuries
Course Description

In-depth study of five or six representative works. Score and libretto analysis, reception history, cult of the performer, role of the contemporary producer-director. Prerequisite: B.Mus. and B.Mus.Arts students and second majors, MUSL 2100, 2200W, and 3100; music minors, MUSL 2200W or 1200; or permission of instructor. FALL. [3] Calico.

MUSL3221 - Opera in the 19th Century
Course Description

In-depth study of five or six representative works. Score and libretto analysis, reception history, cult of the performer, role of the contemporary producer-director. Prerequisites: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. SPRING. [3] Calico.

MUSL3222 - Mahler Symphonies: Songs of Irony
Course Description

An exploration of large orchestral works of Gustav Mahler emphasizing their demonstration of the synthesis of symphony and song and their reflection of nineteenth-century German philosophies of irony. Prerequisites: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. SPRING. [3] Lovensheimer.

MUSL3223 - Music in the Age of Beethoven and Schubert
Course Description

The musical legacy of each composer in culture and (especially) social context: patrons, family, and friends. Prerequisites: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. FALL. [3] Cyrus, Lowe, Shadle.

MUSL3224 - Haydn and Mozart
Course Description

An in-depth look at the music of Haydn and Mozart in cultural and social contexts. Prerequisite: B.Mus. and B.Mus. students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. FALL. [3] Lowe.

MUSL3225 - Brahms and the Anxiety of Influence
Course Description

A study of Brahms' large-scale orchestral works and other selected literature from the perspective of 'influence.' Musical relationships to Couperin, JS Bach and sons, Beethoven, Wagner, Schoenberg and others. Topics include Brahms' self-image; Brahms as conductor, performer and editor; stylistic fingerprints; popular and folk elements; Brahms and later composers; his relationship to Clara; the Wagner-Brahms debate. Prerequisites: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 2100; or permission of instructor. FALL. [3] Cyrus. (Offered alternate years)

MUSL3226 - The String Quartet
Course Description

An intensive exploration of the string quartet. Topics for discussion include origins and history of the genre, rhetoric, audience, reception, interpretation, and performance practice. Prerequisite: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. SPRING. [3] Lowe.

MUSL3227 - Music in the Age of Revolution, 1789-1848
Course Description

Explores developments in genres, styles, patronage, and careers brought on by socioeconomic and political change from late Haydn to Wagner. Topics include nationalism, Romanticism, rise of the middle class, touring virtuoso, composer/critic. Musical analysis, historical and cultural context. Prerequisites: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. FALL. [3] Calico, Shadle.

MUSL3228 - J.S. Bach: Learned Musician & Virtual Traveler
Course Description

Explores the life and works of high baroque composer J.S. Bach, who developed a highly cosmopolitan, erudite musical style. Course will include structural and stylistic analysis and will also address biography, cultural context, and performance practice. Prerequisites: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. SPRING. [3] Lowe.

MUSL3229 - Robert Schumann and the Romantic Sensibility
Course Description

An exploration of Robert Schumann's music and criticism within the context of German Romanticism. B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. SPRING. [3] Lovensheimer.

MUSL3230 - Music and the Construction of National Identity
Course Description

An in-depth exploration of the tools used to construct national musical identities during the long nineteenth century (ca. 1789-1914), including compositional style, performance techniques, and music criticism. Addresses topics from Western Europe, Eastern Europe, and the Americas. Prerequisite: B.Mus. and B.Mus.Arts students and second majors: MUSL 3100; music minors: MUSL 1200 or 2200W; or permission of instructor. SPRING. [3] Shadle.

MUSL3231 - The Art of Program Music: Tone Painting and Symphonic Poetry
Course Description

An in-depth exploration of the style, philosophical basis, and possible meanings of program music, broadly defined. Examples will be taken from the sixteenth century to the present with a focus on the long nineteenth century (1789-1914). Pre-requisite: B.Mus majors, B.Mus.Arts majors, and second majors: MUSL 3100; music minors: MUSL 2200W or 1200; or permission of instructor. [3]

MUSL3232 - God, Sex, and Politics in Early Music
Course Description

An exploration of the intersecting topics of religious practice, love and sexuality, and power structures in early music. Students will gain familiarity with many of the major currents, cultures, composers, and contexts of Western European music from ca. 1100-1650. In addition to the primary themes of the course, we will entertain such other musically relevant topics as mathematics, early music theory, mysticism, the role of women in early music, the development of notation, and questions of performance and interpretation. Prerequisite: B.Mus. and B.Mus.Arts students and second majors, MUSL 3100; music minors, MUSL 2200W or 1200; or permission of instructor. [3] Lowe

MUSL3233 - Music and the Environment
Course Description

An exploration of how music, sound, nature, and culture interact both with and within the environment, engage in current issues of conservation and sustainability, and influence musical creation and expression. We will employ methodologies drawn from musicology, ethnomusicology, sound studies, ecology, environmental history, and ecocriticism to consider musical portraiture of the natural world, historical soundscapes, sonic representations of the environmental past, animal and interspecies musical performance, digital nonhuman musical environments, soundscape ecology, the music/sound of environmental change, and social-activist roles of music in periods of environmental crisis. To emphasize the importance of musical thinking about the interconnections of people and planet, this course culminates in ecomusicological explorations of the Anthropocene. Prerequisite: B.Mus. and B.Mus. Arts students and second majors: MUSL 3100; music minors: MUSL 2200W or 1200; or permission of instructor. [3]

MUSL3234 - Modernist, Contemporary, and Experimental Opera
Course Description

Opera since the early twentieth century and relevant analytical tools. Begins with canonical works representing a range of compositional styles and entry points for examination. The second half builds on those skills and adds new modes of investigation appropriate for repertoire since 2000. [3]

MUSL3235 - Music, Pandemics, and History
Course Description

Musical experiences from the COVID-19 pandemic juxtaposed with an historical corpus of music responding to disease outbreaks, epidemics, and pandemics, including balcony singing and processions, plague masses, chants and motets requesting intercession, fundraisers and educational music, and cantatas celebrating deliverance. [3]

MUSL3236 - Music, Gender, and Sexuality
Course Description

Exploration of gender and sexuality in Western art and vernacular musical traditions. Topics include gendered musical forms, genres, and performance; feminist music criticism; ideologies of musical authorship and genius; musical canons; and musical representations of gender and sexuality.

MUSL3237 - Women and Music
Course Description

An investigation of the roles women have played in the development of Western music - performance, composition, patronage, education -and the social and economic factors that have influenced their position.

MUSL3238 - Global Jazz
Course Description

An exploration of jazz's movement, transformation, and meaning in today's world. Through a series of global case studies, this course will address jazz and its connection to place, history, globalization, politics, media, and identity.

MUSL3239 - Music and Dance
Course Description

This course explores the dynamic relationship between music and dance in its varied global traditions. Ballet and other classical forms, stylized dances as concert music, social dancing, dance and movement in popular culture, folk dance traditions, dance as healing.

MUSL3850 - Independent Study
Course Description

Development and execution of a program of study in musicology or ethnomusicology under the direction of a member of the department. (See Academic Regulations section.) Repeatable for credit, variable up to 3 hours per semester. Musicology faculty. [1-3]

MUSL3890 - Selected Topics in Music History
Course Description

Selected methodological approaches focused on a particular topic. Offerings have included "Music and the American Presidency," "Schoenberg and the Word," "Mingus, Monk, and Miles: Jazz Biography and Jazz Composition," "Stephen Sondheim and the American Musical," and "Mozart Piano Concertos." Prerequisite: varies by topic. May be repeated for credit when topics vary. [3] Musicology faculty.

MUSL4978 - Senior Thesis
Course Description

Completion of an extended paper based in musicological or ethnomusicological research under the supervision of a faculty sponsor. Progress monitored via tutorials. Open only to seniors. Prerequisite: MUSL 3100. Variable credit, 1-3 hours each semester; may be repeated once. Musicology faculty. [1-3]

MUSL4998 - Senior Honors Thesis
Course Description

Independent research on a musicological or ethnomusicological topic, culminating in a written thesis submitted to the faculty. Progress monitored via tutorials. Students completing this course with distinction, including a thesis and an oral defense, will earn honors or highest honors in music literature and history. Open only to students in the department honors program. Prerequisite: departmental approval of formal prospectus. [3] Musicology faculty.

MUSL4999 - Senior Honors Thesis
Course Description

Independent research on a musicological or ethnomusicological topic, culminating in a written thesis submitted to the faculty. Progress monitored via tutorials. Students completing this course with distinction, including a thesis and an oral defense, will earn honors or highest honors in music literature and history. Open only to students in the department honors program. Prerequisite: departmental approval of formal prospectus. [3] Musicology faculty.

Nanoscience and Nanotechnology

NANO3000 - Imaging Techniques in Nanoscale Engineering
Course Description

Principles and practical applications. Processes behind signal formation and use in characterizing material and biological systems at the nanoscale. Includes hands-on laboratory experiments that highlight the characterization capabilities of modern transmission electron, scanning electron, and focused ion beam scanning electron microscopes for imaging nanostructures. Prerequisite: MATH 1301; CHEM 1602 or MSE 1500. FALL. [3]

Naval Science

NS1100 - Introduction to Naval Science (Navy and Marine option)
Course Description

No Credit Toward Current Degree. [3]

NS1300 - Naval Operations (Navy option)
Course Description

No Credit Toward Current Degree. [3]

NS1690 - Sea Power in History (nrotc)
Course Description

U.S. Navy's role in foreign and defense policies from the American Revolution to the present. Broad principles, concepts, and elements of sea power throughout history. Technological advances, interservice relations, strategies, and governmental policies pertaining to sea power. Designed to meet the NROTC requirement; no credit toward History major or minor. Offered on a graded basis only. [3]

NS1691 - Evolution of Warfare (nrotc)
Course Description

Antiquity to the present. Evolution of strategic principles. Influence of technological, economic, moral, psychological, and political factors. Case studies from a soldier's perspective. [3] (No AXLE credit)

NS1693 - Fundamentals of Maneuver Warfare (Nrotc)
Course Description

Broad aspects of warfare and their interactions with maneuver warfare doctrine. Focus on the United States Marine Corps as the premier maneuver warfare fighting institution. Historical influences on current tactical, operational, and strategic implications of maneuver warfare practices. Case studies. [3] (No AXLE credit)

NS2410 - Organization and Management (Navy & Marine option)
Course Description

[3]

NS2420 - Leadership and Ethics (Navy & Marine option)
Course Description

No Credit Toward Current Degree. [3]

Naval Science - Peabody

NS-PC2410 - Leadership and Management
Course Description

This course presents a comprehensive study of organizational behavior and management with special emphasis on situational leadership in the military and civilian sectors and the development of your skills in organizational thinking and problem solving. You will explore a variety of leadership and management topics, including the classical theories of management, motivation and communication. FALL. [3]

NS-PC4242 - Leadership and Ethics
Course Description

An exploration of major Western ethical philosophy in the development and application of leadership to enhance objective, sound and timely decision-making in the most challenging of environments. This course follows theoretical examination with case studies and practical application to emphasize the importance of ethical reasoning to leadership, and explores components of character and integrity in decision making. SPRING. [3]

Neuroscience

NSC1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

NSC2201 - Neuroscience
Course Description

Physiology of nerve cells, sensory and motor systems, sleep, speech, and sexual behavior. Clinical topics include the chemical basis of psychosis, diseases of the brain, and repair mechanisms after brain injury. [3] (MNS)

NSC2222 - Classical Neuroscience
Course Description

History of key concepts in modern neuroscience, their context and impact through the original scientific articles that introduced them, with emphasis in their application in furthering oral and writing science communication skills. [3] (MNS)

NSC3235 - Biological Basis of Mental Disorders
Course Description

Cellular and molecular neuropathology of cortical dysfunction resulting from affective disorders, drug addiction, neurodegenerative disease, and stroke. Prerequisite: NSC 2201 and BSCI 1510. [3] (MNS)

NSC3240 - Neurobiology of Addiction
Course Description

Neural basis of the regulation and dysregulation of reward processing. Pathophysiology of addiction. Serves as repeat credit for NSC 3891 Section 01 in Spring 2016. Prerequisite 2201. [3] (MNS)

NSC3245 - Drug Discovery for Neuropsychiatric Disorders
Course Description

Discovery and development of novel medicines for neurological and psychiatric illness. History of drug discovery, target identification and validation, and medicinal chemistry. In vitro high-throughput screening, drug metabolism, and pharmacokinetics. Prerequisite: 2201. [3] (MNS)

NSC3250 - Neurological Disease
Course Description

Biological basis of neurological diseases and their treatments. Neurodevelopmental disorders, TBI, Alzheimer's, Huntington's, and Parkinson's Disease. Established knowledge, patient experiences, mechanisms of pharmacological treatments, and ongoing research. Data from primary literature and clinically-relevant case studies. No credit for students who completed NSC 3891 section 01 offered Fall 2021 or 2022. Prerequisite: 2201. [3] (MNS)

NSC3251 - GABA
Course Description

Role of GABA in neural function/dysfunction. GABA receptor structure and function in disorders such as epilepsy, addiction, and anxiety. How primary literature informs our current understanding of inhibition in the nervous system. No credit for students who completed NSC 3891 section 01 offered spring 2021 or spring 2022, or section 03 offered fall 2019. Prerequisite: 2201. [3] (MNS)

NSC3252 - Neurophysiology
Course Description

Electrical mechanisms within the nervous system and the lab techniques used to investigate them. Principles of current flow; basis of the resting potential; structure and function of voltage-gated and neurotransmitter-gated ion channels; generation and propagation of action potentials; circuit model of a neuron. Prerequisite: 2201. Not open to students who completed NSC 3891 section 02 Neurophysiology offered fall 2022, fall 2021, fall 2020. [3] (MNS)

NSC3260 - Psychopharmacology
Course Description

Synaptic actions of therapeutic and recreational drugs. Research approaches for drug actions and substance use disorder. Circuit mechanisms of effects on cognition and behavior. Serves as repeat credit for NSC 3630 or PSY 3630 (if taken Spring 2023 or earlier). Prerequisite: NSC 2201. [3] (MNS)

NSC3269 - Developmental Neuroscience
Course Description

Normal and abnormal brain development. Cell division, migration, and death; synapse formation and plasticity; and clinical syndromes. Prerequisite: 2201. [3] (MNS)

NSC3270 - Computational Neuroscience
Course Description

Theoretical, mathematical, and simulation models of neurons, neural networks, or brain systems. Computational approaches to analyzing and understanding data from behavior, neurophysiology, electrophysiology, or brain imaging. Simulation methods for neural models. Course taught using Python. Recommended: NSC 2201.Prerequisite: either DS 1100/CS 1100, 1101, 1103, or 1104 (or a more advanced programming course); and either MATH 1200 or 1300 (or a more advanced calculus course). [3] (MNS)

NSC3272 - Structure and Function of the Cerebral Cortex
Course Description

Classic and current concepts of cerebral function. Species differences, receptive field organization, neurotransmitters, modifications by experience, and behavioral effects. Prerequisite: 2201. [3] (MNS)

NSC3274 - Neuroanatomy
Course Description

Functional and comparative anatomy of nervous systems, emphasis on vertebrate brains. Fundamental concepts, organizational principles, structure, connectivity, and how these relate to function and behavior. Demonstrations using plates with human brain sections. Offered on a graded basis only. Prerequisite: 2201. [3] (MNS)

NSC3630 - Drugs and Behavior
Course Description

Drug effects on neural circuits, human physiology, individual psychology, and society. Prior to spring 2023, serves as repeat credit for students who have earned credit for NSC 3260. Serves as repeat credit for students who have earned credit for PSY 3630. Prerequisite: 1200 or NSC 2201. [3] (SBS)

NSC3851 - Independent Reading in Neuroscience
Course Description

Reading and discussion of research papers on a selected topic under direction of a faculty sponsor. Consent of both faculty sponsor and the director of honors and independent study is required. May be repeated for credit once if there is no duplication in topic, but students may earn only up to 1 credit per semester of enrollment. [1; maximum of 2 credits for all semesters of NSC 3851] (No AXLE credit)

NSC3860 - Introduction to Neuroscience Research.
Course Description

Research and reading in the laboratory of a member of the Neuroscience Program. Consent of the Director of Honors and Independent Research is required. Serves as repeat credit for students who have completed 290. [1] (No AXLE credit)

NSC3861 - Undergraduate Research
Course Description

Original student research on a defined problem in neuroscience under the direction of a faculty sponsor with "Entering Research Bootcamp" discussion section. Consent of both the faculty sponsor and the director of independent studies is required. Prerequisite: 3860 or both 2201 and sophomore standing. [3] (No AXLE credit)

NSC3862 - Undergraduate Research
Course Description

Continuation of 3861. Original student research on a defined problem in neuroscience under the direction of a faculty sponsor. Consent of both the faculty sponsor and the director of honors and independent studies is required. Prerequisite: 3861. [3] (No AXLE credit)

NSC3863 - Advanced Research in Neuroscience
Course Description

Original student research on a defined problem in neuroscience under the direction of a faculty sponsor with some independence in the design and execution of the project. Consent of both the faculty sponsor and the director of honors and independent studies is required. Prerequisite: 3862. [3] (No AXLE credit)

NSC3864 - Advanced Research in Neuroscience
Course Description

Continuation of a research project on a defined problem in neuroscience under the direction of a faculty sponsor with some independence in the design and execution of the project. Consent of both the faculty sponsor and the director of honors and independent studies is required. May be taken for credit more than once, but students may earn only up to 3 credits per semester. Prerequisite 3863. [3] (No AXLE credit)

NSC3891 - Special Topics in Cellular and Molecular Neuroscience
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 2201. [3] (MNS)

NSC3892 - Special Topics in Systems and Integrative Neuroscience
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 2201. [3] (MNS)

NSC4961 - Integrative Neuroscience
Course Description

Structure and function of nervous systems. Emphasis on the vertebrate brain and the relationship of anatomy, physiology, and biochemistry to sensory perception, cognition, motor activity, and learning and memory. Prerequisite: 2201 and senior standing. [3] (MNS)

NSC4961W - Integrative Neuroscience
Course Description

Structure and function of nervous systems. Emphasis on the vertebrate brain and the relationship of anatomy, physiology, and biochemistry to sensory perception, cognition, motor activity, and learning and memory. Serves as repeat credit for 4961. Prerequisite: 2201 and senior standing. [3] (MNS)

NSC4969 - Senior Seminar in Neuroscience
Course Description

Seminar with advanced reading, discussion, and writing on a specific topic in neuroscience. Limited to seniors. [3] (No AXLE Credit)

NSC4999 - Honors Research
Course Description

Participation in a research project under the direction of a faculty sponsor. Consent of both the faculty sponsor and the director of honors and independent study is required. May be repeated for credit more than once, but students may earn only up to 4 credits per semester of enrollment. [2-4] (No AXLE credit)

Other Music Courses

MUSO1000 - Recital Attendance
Course Description

Weekly recitals in solo and chamber music settings, presented by students enrolled for performance instruction, and six additional faculty/student recitals and concerts. Required of all music degree (B.Mus.) students. (See Academic Regulations section of Catalog.) Offered on a pass/fail basis. [0] Melissa Rose.

MUSO1001 - Commons iSeminar
Course Description

Open to first-year students of all four undergraduate schools. Topics approved by Blair faculty. Students may propose topics through the associate dean. No credit toward a major or minor in music. General Elective credit only. FALL, SPRING. [1] Staff.

MUSO1130 - Percussion Seminar
Course Description

Overview of percussion in Western and non-Western cultures from pre-history to present. Emphasis on European/American orchestral practices. Representative works for study chosen from symphony, opera, oratorio, and other orchestral/choral sources.

MUSO1201 - Lyric Theatre Workshop I
Course Description

Introduction to the various performance elements of the lyric theatre experience: acting, movement, improvisation, use of the voice, stage combat, and scene study. Open to all Vanderbilt students by consent of instructor.

MUSO1202 - Lyric Theatre Workshop II
Course Description

Various performance elements of the lyric theatre experience: acting, movement, improvisation, use of the voice, stage combat, and scene study. Prerequisite: MUSO 1201. SPRING. [1] Shay.

MUSO1203 - Lyric Theatre Workshop for Instrumentalists
Course Description

Beginning acting and movement techniques for the lyric stage as they pertain to instrumental musicians. Memorized texts, acting improvisation, and stage movement are explored to gain better connection to the music, fellow collaborators, and the audience. Application to individual instrumental repertoire required. Open by consent of instructor. SPRING. [1] Shay.

MUSO1210 - Baroque Performance for Strings
Course Description

Aspects of period instrument performance adaptable to modern instruments and modern bows. Articulation, ornamentation, the rule of the down-bow, the influence of dance, and other technical and stylistic issues. Baroque bow provided. Culminates in a lecture-performance. May be repeated for credit. [1]

MUSO1230 - Lyric Writing Workshop
Course Description

Designed to help students find their unique voice as lyricists through lecture, reading, exercises, discussion, and lyric analysis. Does not count toward a major or minor in music. [1]

MUSO1240 - Songwriting and Elements of Music Theory
Course Description

(Previously MUTH 1120) Introduction to fundamental elements of music as they apply to popular songwriting techniques. Selected readings on the technical and aesthetic facets of songwriting. Listening analysis and discussion of songs in a variety of current styles. Selected aural skills as they relate to the songwriter's craft. Class visits by successful songwriters. Designed for students with little or no technical training in music. Does not count toward a major or minor in music. FALL, SPRING. [3] Walker.

MUSO1241 - Songwriting II
Course Description

(Previously MUTH 1125) Project-based class designed to refine and advance skills developed in MUSO 1240 (previously MUTH 1120). Focuses on effective musical and lyrical thematic treatment. Extensive study of rewriting techniques; frequent performances of student compositions. Selected readings on the technical and aesthetic facets of songwriting. Listening, analysis, and discussion of songs in a variety of current styles. Occasional Monday night sessions with guest songwriters and experts in the field. Does not count toward a major or minor in music. May be repeated once for credit. Prerequisite: MUSO 1240 (previously MUTH 1120). FALL, SPRING. [3] Walker.

MUSO1302 - History of Classical Recording
Course Description

A survey of the five main periods - acoustic, electric, LP, stereo and digital - of recorded classical music. Students will listen to the recordings of such legendary artists as Caruso, Paderewski, Kreisler, Toscanini and Callas. The profound impact of recording technology on performance practice itself will also be thoroughly considered. [3]

MUSO1310 - Music, Mind, and Body
Course Description

This course explores the art of musical expression through the principles and techniques of Jacques-Dalcroze. Using the theoretical framework of enactive cognition, students will engage in a reflective practice synthesizing reading, expressive movement, rhythm, and improvisation in music from a broad array of styles and cultures.

MUSO1340 - Technology for Musicians
Course Description

Introduction to music related computer technology essential to the contemporary musician, including basic principles of MIDI, audio editing, audio effects, and computer music notation.

MUSO1342 - Fundamentals of Audio Technology
Course Description

Introduction to analog and digital audio, recording/editing in a digital audio workstation, microphones, signal processing, and audio-based music production techniques. Hands-on creative projects. Prerequisite: MUSO 1340, or demonstrated musical literacy and permission of instructor.

MUSO1344 - Electronic Music Production and Sound Design
Course Description

Introduction to hardware and software synthesizers, manipulation of basic waveforms, and sampling. Design of original virtual instruments and hands-on creative projects. Prerequisite: MUSO 1340 or permission of instructor.

MUSO1346 - Mixing Techniques
Course Description

Project-based focus on the improvement of student productions through effective mixing techniques. Exploration and application of balance, equalization, dynamics, reverb, compression, and other signal processing techniques. Discussion of genre specific techniques for acoustic and electronic music styles. Prerequisites: MUSO 1342 and 1344 or instructor consent.

MUSO1348 - Sound and Music Production for Games
Course Description

A study of sound and music production and implementation for games. Presents a solid foundation of knowledge and skills to prepare for entry-level work as a sound designer at a game development company or as a freelance game audio professional, including experience with typical game audio workflow and an historical overview of the video game industry.

MUSO1400 - Diction for Singers: English and Italian
Course Description

An introduction to the International Phonetic Alphabet as applied to lyric English and Italian diction. FALL. [1] Montgomery.

MUSO1410 - Diction for Singers: German
Course Description

High German diction, using the International Phonetic Alphabet. Prerequisite: 1400 or permission of the instructor. SPRING. [1] Montgomery.

MUSO1420 - Diction for Singers: French
Course Description

French stage diction, using the International Phonetic Alphabet. Prerequisite: 1400 or permission of the instructor. FALL. [1] Montgomery.

MUSO1501 - Community Music Partnerships: Fundamentals and Applications I
Course Description

Development of practical skills for music-making in a variety of community service contexts. Interactive setting with a focus on skills of collaboration and communication, both as artists and with a community partner. Culminates in small case-study group performance projects. [1]

MUSO1502 - Community Music Partnerships: Fundamentals and Applications II
Course Description

Application of essential skills of programming, audience development, marketing, and collaboration, through a mentored, project-based experience with a community partner in metro Nashville. Culminates in a public performance in collaboration with the community partner. Prerequisite: MUSO 1501. [1]

MUSO2100 - Music Criticism and Writing
Course Description

A practical guide to writing professional music criticism. Readings include selected writings of the great critics, literary authors, program annotators and bloggers. Assignments involve listening exercises, written reviews and program notes. Difference in style among classical, jazz and rock critics will be considered. Prerequisites: MUSL 2200W and MUSL 2100, or permission of instructor. FALL. [2] Pitcher.

MUSO2200 - The Movement of Line
Course Description

By examining in detail interrelated examples from calligraphy, drawing, verse, and music, this course seeks to discover common elements of concept and construction in diverse forms of linear movement. Sophomore standing and an ability to read a single line of music required. [3]

MUSO3010 - Performance in Practice, IES Vienna
Course Description

Open by audition to students in the IES Vienna program. The workshop is designed to offer vocalists and instrumentalists the opportunity to expand repertoire and enhance performance skills. Rehearsal and discussion of aspects of selected works in relation to the challenge of performance. May be repeated once for credit. [2] Staff.

MUSO3100 - Music and Cognition
Course Description

Theories and research about the cognition of music, appreciation, and performance. Selected musical topics include timbre, consonance, dissonance, tuning, melody, rhythm, scales, modes, chords, and composition. Concepts and research from the psychological sciences emphasize sensory mechanisms, perceptual discriminations, pattern recognition, categorization, transfer of learning, and motor coordination. Prerequisite: one course in music or psychology. [3]

MUSO3850 - Independent Study
Course Description

Development of a project or a program of reading under the direction of a faculty sponsor. Consent of the faculty sponsor is required. (See Academic Regulations section.) [Repeatable for credit, variable up to 3 hours per semester.] Staff.

MUSO3970 - Junior Recital
Course Description

Students are encouraged to prepare a joint recital, shared with another degree candidate. See Blair Academic Regulations section of the Undergraduate Catalog for detailed requirements. Open by permission of instructor. [1]

MUSO4970 - Senior Recital
Course Description

See Blair Academic Regulations section of the Undergraduate Catalog for detailed requirements. Open by permission of instructor. [1]

MUSO4972 - Jazz Concentration Recital
Course Description

See Blair Academic regulations section of the Undergraduate Catalog for detailed requirements. Open by permission of instructor. [1]

Peabody College

PBDY2100 - Introduction to Post-Secondary Learning Needs
Course Description

This course provides an introduction to learning in higher education for first semester students. Students will be exposed to research on metacognition, executive functioning, learning strategies and goal-setting and allows students opportunities to self-evaluate their learning strengths and needs based on literature focused on adolescent and young-adult learning. [3]

Peabody Honors Scholars

PSCH1110 - Peabody Honors Seminar I
Course Description

Spring seminar for selected Peabody students. [3]

PSCH1817 - Peabody Honors Seminar in the Humanities and Creative Arts
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to six credits per semester of enrollment. [3]

PSCH1827 - Peabody Perspectives Honors Seminar
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to six credits per semester of enrollment. [3]

PSCH1837 - Peabody Honors Seminar Behavioral and Social Sciences
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to six credits per semester of enrollment. [3]

PSCH1847 - Peabody Honors Seminar in History and Culture of the United States
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [3]

PSCH1857 - Peabody Honors Seminar in Mathematics and Natural Science
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to six credits per semester of enrollment. [3]

PSCH1867 - Peabody Honors Seminar in International Cultures
Course Description

Offered on a graded basis only. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to six credits per semester of enrollment. [3]

PSCH2115 - Peabody Scholars Seminar II
Course Description

Seminar for Peabody Scholars in the second year of study. Topics vary. [0-3]

PSCH4965 - Peabody Scholars Capstone Seminar I
Course Description

Capstone Seminar for Peabody Scholars to be taken fall semester of the senior year. [0-3]

PSCH4966 - Peabody Scholars Capstone Seminar II
Course Description

Capstone Seminar for Peabody Scholars to be taken spring semester of the senior year. [0-3]

Performance Instruction: Banjo

BNJO1100 - Banjo
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open for elective credit. New students by interview only. Fees apply to non-B.Mus. students [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Brown.

Performance Instruction: Bass

BASS1000 - Bass Performance Class
Course Description

Weekly observation and participation. Required of all bass majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Reist, Wanner.

BASS1100 - Double Bass (elective/ minors/ second majors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus. students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Meyer, Reist, Wanner.

BASS2100 - Double Bass (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Reist, Wanner.

BASS2200 - Double Bass (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Meyer, Reist, Wanner.

BASS4100 - Double Bass (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Reist, Wanner.

BASS4200 - Double Bass (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Meyer, Reist, Wanner.

Performance Instruction: Bassoon

BSSN1000 - Bassoon Performance Class
Course Description

Weekly observation and participation. Required of all bassoon majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Kolkay.

BSSN1100 - Bassoon (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Kolkay.

BSSN2100 - Bassoon (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Kolkay.

BSSN2200 - Bassoon (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Kolkay.

BSSN4100 - Bassoon (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Kolkay.

BSSN4200 - Bassoon (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Kolkay.

Performance Instruction: Cello

CLLO1000 - Cello Performance Class
Course Description

Weekly observation and participation. Required of all cello majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Wang.

CLLO1100 - Cello (elective credit and General Music Minors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] K. Cassel, Mansell, S. Reist, Wang.

CLLO2100 - Cello (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Wang.

CLLO2200 - Cello (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Wang.

CLLO4100 - Cello (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Wang.

CLLO4200 - Cello (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Wang.

Performance Instruction: Clarinet

CLAR1000 - Clarinet Performance Class
Course Description

Weekly observation and participation. Required of all clarinet majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Jackson.

CLAR1100 - Clarinet (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Jackson, Lee.

CLAR2100 - Clarinet (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus. and Integrated Studies majors. [2] Jackson.

CLAR2200 - Clarinet (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Jackson.

CLAR4100 - Clarinet (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Jackson.

CLAR4200 - Clarinet (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Jackson.

Performance Instruction: Drumset

DRUM1100 - Drumset (elective credit)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] D. Phillips.

Performance Instruction: Euphonium

EUPH1100 - Euphonium (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Long.

EUPH2100 - Euphonium (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Long.

EUPH2200 - Euphonium (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Long.

EUPH4100 - Euphonium (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Long.

EUPH4200 - Euphonium (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Long.

Performance Instruction: Fiddle

FDDL1100 - Fiddle
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open for elective credit. Fees apply to non-B.Mus.B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Combs, Plohman.

Performance Instruction: Flute

FLUT1000 - Flute Performance Class
Course Description

Weekly observation and participation. Required of all flute majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Barth.

FLUT1100 - Flute (elective/music minors/2nd majors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Barth, Dunnavant.

FLUT2100 - Flute (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Barth.

FLUT2200 - Flute (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Barth.

FLUT4100 - Flute (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Barth.

FLUT4200 - Flute (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Barth.

Performance Instruction: Guitar Classical

GTR1010 - Introduction to Guitar I
Course Description

A foundation in basic guitar technique that will prepare students for future studies in classical, jazz, or popular styles of guitar. Emphasis on chordal accompaniment, development of reading skills, improvisational techniques with melodies and chords. One 50-minute group lesson weekly. Fees apply to non-B.Mus./B.Mus.Arts students. [1] Kimbrough.

GTR1020 - Introduction to Guitar II
Course Description

A foundation in basic guitar technique that will prepare students for future studies in classical, jazz, or popular styles of guitar. Emphasis on chordal accompaniment, development of reading skills, improvisational techniques with melodies and chords. One 50-minute group lesson weekly. Prerequisite: GTR 1010 or permission of instructor. Fees apply to non-B.Mus./B.Mus.Arts students. [1] Kimbrough.

GTR1030 - Fingerboard Harmony
Course Description

Individual instruction in advanced guitar skills: modal positions, modal patterns, score reading, arpeggios, transposition, and chord progressions. Fees apply to non-B.Mus. students. Prerequisite: GTR 1020 or permission of instructor. FALL, SPRING. [1-2 variable hours, based on lesson length as agreed on with instructor.] Kimbrough

GTR1100 - Guitar (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Todd.

Performance Instruction: Harp

HARP1000 - Harp Performance Class
Course Description

Weekly observation and participation. Required of all harp majors, B.Mus. and B.Mus.Arts . Offered on a pass/fail basis. [0] Copely.

HARP1100 - Harp (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Agresta Copely.

HARP2100 - Harp (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Copely.

HARP2200 - Harp (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Shaffer.

HARP4100 - Harp (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Agresta Copely.

HARP4200 - Harp (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Shaffer.

Performance Instruction: Harpsichord

HRPS1100 - Harpsichord
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students [1-2 variable credit hours, based on lesson length and repertoire as agreed on with instructor]. Brecht.

HRPS1120 - Harpsichord Continuo
Course Description

Accompanying repertoire from the 17th and 18th centuries. Topics include playing from figured and unfigured bass lines, playing simple 4-part exercises, and constructing inventive accompaniments. Recommended for harpsichord, organ, and collaborative piano students; audition required for non-keyboard majors. Concurrent enrollment in HRPS 1100 recommended.

Performance Instruction: Horn

HORN1000 - Horn Performance Class
Course Description

Weekly observation and participation. Required of all horn majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Norton.

HORN1100 - Horn (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Norton.

HORN2100 - Horn (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Norton.

HORN2200 - Horn (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Norton

HORN4100 - Horn (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Norton.

HORN4200 - Horn (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Norton

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Performance Instruction: Jazz

JAZZ1000 - Global Jazz Forum
Course Description

Weekly observation and participation. Required of all B.Mus. jazz studies majors and students enrolled in MUSE 1310, 1320, or 1340. [0]

JAZZ1100 - Jazz Private Instruction
Course Description

Private instruction on standard jazz instruments and voice. Repertory and techniques chosen to meet individual needs. Open by audition. Private lesson fees apply to non-B.Mus./B.Mus.Arts students. May be repeated for credit. [Variable credit: 1-2 each semester. Multiple section enrollment possible. Students may accrue up to 6 credits per semester of enrollment]. Barber, Coffin, Dudley, Kimbrough, Middagh, Phillips, Spencer, Watson Utterstrom.

JAZZ1150 - Jazz and Commercial Arranging
Course Description

Individual instruction in jazz and commercial arranging, content ranging from lead sheet writing to studio orchestra. Repertory and techniques chosen to meet individual needs. [1-2] Middagh

JAZZ1210 - Jazz Improvisation I: The Blues
Course Description

(Previously MUSO 1220) Introduction to the techniques of jazz improvisation. Development of basic performing technique with in-depth study of the blues form and its variations. [1]

JAZZ1220 - Jazz improvisation II: The Great American Songbook
Course Description

(Previously MUSO 1221) Intermediate study techniques for jazz improvisation. In-depth study of rhythm changes, the Great American Songbook, and jazz standards. Introduction to re-harmonization techniques. Prerequisite:JAZZ 1210 (Previously MUSO 1220). [1]

JAZZ1230 - Jazz Improvisation III: Post-bop and Beyond
Course Description

(Previously MUSO 1222) Advanced study in techniques for jazz improvisation. In-depth study of contemporary jazz compositions, structured- and free-forms, and original student compositions. Prerequisite: JAZZ 1210 (previously MUSO 1220) and JAZZ 1220 (previously MUSO 1221). [1]

JAZZ2100 - Jazz (B.Mus. Jazz Studies First Years/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus. Jazz Studies majors.

JAZZ4100 - Jazz (B.Mus. Jazz Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus. jazz studies majors juniors and seniors.

Performance Instruction: Mandolin

MNDL1100 - Mandolin
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open for elective credit. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Pearcy

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Performance Instruction: Oboe

OBOE1000 - Oboe Performance Class
Course Description

Weekly observation and participation. Required of all oboe majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Jared Hauser.

OBOE1100 - Oboe (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Hauser, Wiesmeyer.

OBOE2100 - Oboe (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Hauser.

OBOE2200 - Oboe (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Hauser.

OBOE4100 - Oboe (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Hauser.

OBOE4200 - Oboe (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Hauser.

Performance Instruction: Organ

ORGN1100 - Organ (elective/ minor / second major)
Course Description

ndividual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Brecht.

Performance Instruction: Percussion

PERC1000 - Percussion Performance Class
Course Description

Weekly observation and participation. Required of all percussion majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Jung.

PERC1010 - Introduction to Percussion
Course Description

Basic percussion techniques with emphasis on rolls, embellishments, sticking combinations, and their applications for concert and popular musical styles. Prerequisite: previous musical experience and an understanding of notation. One 50-minute group lesson weekly. Fees apply to non-B.Mus./B.Mus.Arts students. [1]

PERC1100 - Percussion (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Jung.

PERC2100 - Percussion (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Jung.

PERC2200 - Percussion (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Jung.

PERC4100 - Percussion (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Specialized study in drumset, jazz vibraphone or contemporary marimba is available. Open only to B.Mus.Arts and Integrated Studies juniors and seniors; and for elective credit to Percussion Performance juniors and seniors. [2] Jung.

PERC4200 - Percussion (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Specialized study in drumset, jazz vibraphone or contemporary marimba is available. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Jung.

Performance Instruction: Piano

PIAN1000 - Piano Performance Class
Course Description

Weekly observation and participation. Required of all piano majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Dorfman, Krieger, Nies.

PIAN1010 - Introduction to Piano I
Course Description

A total-musicianship approach to the piano. Repertoire, technique, and sight reading are studied. Also includes the study of transposition, harmonization, and improvisation. One 50-minute group lesson weekly. Fees apply. Not open to B.Mus./B.Mus.Arts students. FALL, SPRING. [1]

PIAN1020 - Introduction to Piano II
Course Description

A total-musicianship approach to the piano. Repertoire, technique, and sight reading are studied. Also includes the study of transposition, harmonization, and improvisation. One 50-minute group lesson weekly. Prerequisite: PIAN 1010 or permission of instructor. Fees apply. Not open to B.Mus./B.Mus.Arts students. FALL, SPRING. [1]

PIAN1030 - Early Intermediate Piano Repertoire
Course Description

Students will learn classical piano repertoire along with popular songs that include keyboard concepts. Keyboard harmony and technique will be used to support the student's adventure through piano literature. A daily sight reading component will help build confidence in grand staff reading. Open to students who have completed MUKH 1131 or PIAN 1020. [1]

PIAN1100 - Piano (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Conner, Dorfman, Hwang, Krieger, Middleton, Nies, Reagan, Yang.

PIAN2100 - Piano (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Dorfman, Krieger, Nies.

PIAN2200 - Piano (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Dorfman, Krieger, Nies.

PIAN4100 - Piano (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Dorfman, Krieger, Nies.

PIAN4200 - Piano (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Dorfman, Krieger, Nies.

Performance Instruction: Saxophone

SAX1000 - Saxophone Performance Class
Course Description

Weekly observation and participation. Required of saxophone majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Utley.

SAX1100 - Saxophone (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Utley.

SAX2100 - Saxophone (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Utley.

SAX2200 - Saxophone (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Utley.

SAX4100 - Saxophone (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Utley.

SAX4200 - Saxophone (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Utley.

Performance Instruction: Steel Pan

STPN1100 - Steel Drum
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open for elective credit. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Britain.

Performance Instruction: Trombone

TROM1000 - Trombone Performance Class
Course Description

Weekly observation and participation. Required of all trombone majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Wilson.

TROM1100 - Trombone (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Wilson.

TROM2100 - Trombone (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Wilson.

TROM2200 - Trombone (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Wilson.

TROM4100 - Trombone (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Wilson.

TROM4200 - Trombone (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Wilson.

Performance Instruction: Trumpet

TRPT1000 - Trumpet Performance Class
Course Description

Weekly observation and participation. Required of all trumpet majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Sibaja.

TRPT1100 - Trumpet (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Kunkee, Sibaja.

TRPT2100 - Trumpet (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Sibaja.

TRPT2200 - Trumpet (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Sibaja.

TRPT4100 - Trumpet (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Sibaja.

TRPT4200 - Trumpet (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Sibaja.

Performance Instruction: Tuba

TUBA1000 - Low Brass Performance Class
Course Description

Weekly observation and participation. Required of all euphonium and tuba majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Long.

TUBA1100 - Tuba (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Long.

TUBA2100 - Tuba (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Long.

TUBA2200 - Tuba (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Long.

TUBA4100 - Tuba (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Long.

TUBA4200 - Tuba (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Long.

Performance Instruction: Viola

VLA1000 - Viola Performance Class
Course Description

Weekly observation and participation. Required of all viola majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Kochanowski, Plummer.

VLA1010 - Viola for Violinists
Course Description

Technical principles, practices, and strategies for violinists learning viola. Investigation of solo and chamber music repertoire; historical evolution of the viola. Viola provided. Prerequisite: Approval of violin instructor and course instructor. FALL, SPRING. [1] Plummer.

VLA1100 - Viola (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.]

VLA2100 - Viola (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus. and Integrated Studies majors. [2] Plummer.

VLA2200 - Viola (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Kochanowski, Plummer.

VLA4100 - Viola (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Kochanowski, Plummer..

VLA4200 - Viola (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Kochanowski, Plummer.

Performance Instruction: Violin

VLN1000 - Violin Performance/Studio Class
Course Description

Weekly observation and participation. Required of all violin majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Heard, Huebl, and Miahky.

VLN1100 - Violin (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.] Blackwell, Combs, Heard, Huebl, McGann, Miahky, Romero Ramos.

VLN2100 - Violin (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Heard, Huebl, Miahky.

VLN2200 - Violin (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [4] Heard, Huebl, Miahky.

VLN4100 - Violin (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Heard, Huebl, Miahky.

VLN4200 - Violin (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Heard, Huebl, Miahky.

Performance Instruction: Voice

VOIC1000 - Voice Performance Class
Course Description

Weekly observation and participation. Required of all voice majors, B.Mus. and B.Mus.Arts. Offered on a pass/fail basis. [0] Voice faculty.

VOIC1010 - Introduction to Voice I
Course Description

Vocal anatomy, fundamentals of breathing and healthy phonation, posture, performance anxiety, listening skills and dealing with tension. Appropriate for beginning singers who have never taken private voice lessons and are interested in Musical Theater, Pop Music, Commercial music, Opera, and other genres. Fees apply.

VOIC1020 - Introduction to Voice II
Course Description

Continuation of VOIC 1010. Topics include range extension, how to learn vocal music, singing in foreign languages, projection, and preparing for choral auditions. Appropriate for beginning singers who have taken private vocal lessons, sung in ensembles, or are music majors interested in voice as a second instrument. Includes study of musical theater, pop music, commercial music, opera and other genres. Fees apply. This course is a prerequisite for VOIC 1100.

VOIC1100 - Voice (elective/ minor / second major)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. New students by interview only. Prerequisite is VOIC 1020. Fees apply to non-B.Mus./B.Mus.Arts students. [1-2 variable credits, based on lesson length and repertoire as agreed on with instructor.]

VOIC2100 - Voice (B.Mus.Arts and Integrated Studies Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies majors. [2] Jarman, T. Nelson, Shay.

VOIC2200 - Voice (Performance Majors Freshmen/Sophomores)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to freshman and sophomore performance majors. [3] Jarman, Nelson, Shay.

VOIC4100 - Voice (B.Mus.Arts and Integrated Studies Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to B.Mus.Arts and Integrated Studies juniors and seniors. [2] Jarman, Nelson, Shay.

VOIC4200 - Voice (Performance Majors Juniors/Seniors)
Course Description

Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to junior and senior performance majors. Prerequisite: successful completion of upper divisional hearing. [4] Jarman, Nelson, Shay.

Persian

PERS1101 - Elementary Persian I
Course Description

Development of reading, listening, speaking, and writing skills. Not open to students who have earned credit for a more advanced Persian language course without permission. Credit hours will be reduced from most recent course taken (or from test or transfer credit) as appropriate. [3] (INT)

PERS1102 - Elementary Persian II
Course Description

Development of reading, listening, speaking, and writing skills. No credit for students who have earned credit for a more advanced Persian language course. Prerequisite: 1101. [3] (INT)

Philosophy

PHIL1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

PHIL1002 - Introduction to Philosophy
Course Description

An introduction to the basic problems of philosophy based upon readings in the works of selected leading philosophers. Repeat credit for students who have completed 1002W. [3] (HCA)

PHIL1002W - Introduction to Philosophy
Course Description

An introduction to the basic problems of philosophy based upon readings in the works of selected leading philosophers. Repeat credit for students who have completed 1002. [3] (HCA)

PHIL1003 - General Logic
Course Description

A study of the uses of language, definition, informal fallacies, the theory of the syllogism, the basic operations of modern symbolic logic, and selected issues in inductive logic and scientific method. Emphasis is placed on the ambiguities and pitfalls of ordinary usage and on techniques for translating ordinary arguments into formal logic. [3] (MNS)

PHIL1004 - Introduction to Asian Philosophy
Course Description

Philosophical thought of Asian origin, especially India and China, from ancient times to the present, theoretical and practical concerns. Repeat credit for students who have completed 1004W. [3] (INT)

PHIL1004W - Introduction to Asian Philosophy
Course Description

Philosophical thought of Asian origin, especially India and China, from ancient times to the present, theoretical and practical concerns. Repeat credit for students who have completed 1004. [3] (INT)

PHIL1005 - Introduction to Ethics
Course Description

A study of theories of the good life and of the nature of virtue. Readings in major texts and discussion of selected problems. Serves as repeat credit for PHIL 1005W. [3] (P)

PHIL1005W - Introduction to Ethics
Course Description

A study of theories of the good life and of the nature of virtue. Readings in major texts and discussion of selected problems. Serves as repeat credit for PHIL 1005. [3] (P)

PHIL1008 - Introduction to Medical Ethics
Course Description

Moral issues in the practice of medicine, biomedical research, policies and regulations related to health care. Repeat credit for students who have completed 1008W. [3] (P)

PHIL1008W - Introduction to Medical Ethics
Course Description

Moral issues in the practice of medicine, biomedical research, policies and regulations related to health care. Repeat credit for students who have completed 1008. [3] (P)

PHIL1009 - Introduction to Philosophy of Artificial Intelligence
Course Description

Philosophical questions concerning the nature, possibility, and ethics of artificial intelligence. [3] (HCA)

PHIL1100 - Introduction to Business Ethics
Course Description

Ethical issues arising from business and professional practice. Topics will include: corporate social responsibility, employee rights, technology and privacy in the workplace, corporate governance, and globalization. [3] (P)

PHIL1103 - Justice
Course Description

Different understandings of and debates concerning justice. Equality and freedom, individualism and community, diversity, patriotism, and representation. [3] (HCA)

PHIL1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

PHIL1200 - The Meaning of Life
Course Description

Accounts of life's meaning. The relations between ways of living, happiness, and the fact of death. The individual's role in giving meaning to life. Readings from Mill, Tolstoy, Kierkegaard, and several contemporary thinkers. Repeat credit for students who have completed 1200W. [3] (HCA)

PHIL1200W - The Meaning of Life
Course Description

Accounts of life's meaning. The relations between ways of living, happiness, and the fact of death. The individual's role in giving meaning to life. Readings from Mill, Tolstoy, Kierkegaard, and several contemporary thinkers. Repeat credit for students who have completed 1200. [3] (HCA)

PHIL1865 - Civil War: Philosophical Perspectives
Course Description

Problems in social and political philosophy as seen through the lens of the U.S. Civil War. Moral criteria for justifying secession and war, existential perspectives on mass death, ethical paradoxes of slaveholding in a democratic republic, meanings of race and nation, uses and abuses of history and memory. [3] (HCA)

PHIL2100 - Ancient Philosophy
Course Description

An examination of the major Greek and Roman philosophers with emphasis on the works of Plato and Aristotle. [3] (HCA)

PHIL2101 - Hellenistic and Late Ancient Philosophy
Course Description

Philosophical ideas of Stoics, Cynics, Epicureans, skeptics, Peripatetics, Neoplatonists, and early monotheist thinkers such as Philo, Origen, and Philoponus. [3] (HCA)

PHIL2102 - Medieval Philosophy
Course Description

Comparative study of key figures in Islamic, Jewish, and Christian philosophy as they struggle with the philosophy of logic, metaphysics, language, culture, politics, ethics, and nature. [3] (INT)

PHIL2103 - Modern Philosophy
Course Description

An examination of the major philosophers of modern Europe from Descartes and Spinoza through Locke, Berkeley, Hume, and Kant. [3] (HCA)

PHIL2104 - Nineteenth-Century Philosophy
Course Description

A study of selected themes and writings from nineteenth-century European philosophers. [3] (INT)

PHIL2109 - Twentieth-Century Continental Philosophy
Course Description

A study of selected twentieth-century philosophers such as Derrida, Foucault, and Lacan. [3] (HCA)

PHIL2110 - Contemporary Philosophy
Course Description

An examination of selected problems treated in recent philosophical literature such as meaning, perception, knowledge, truth, and freedom. Readings from the Anglo American analytical and the phenomenological traditions. [3] (HCA)

PHIL2608 - Death and Dying
Course Description

Death and dying. Ethical issues. Work on concepts central to ethical reasoning about life, dying, and death, and on topics such as end-of-life decision making, euthanasia, advance directives, allocation, and equipoise. [3] (HCA)

PHIL2620 - Ethics of Artificial Intelligence
Course Description

Ethical issues in the use and development of artificial intelligence. [3] (HCA)

PHIL2660 - Philosophy of Music
Course Description

Music and meaning, language, emotion, expression, interpretation, performance, the body, and politics. No musical background is required. [3] (HCA)

PHIL2661 - Philosophy of Sport
Course Description

Philosophical examination of sports, athletics, games, and play. Fairness, competition, cheating, aesthetics, embodiment, and doping. Role models, gender, exploitation, luck, and sports ethics. [3] (P)

PHIL2665 - Race and Racism
Course Description

Race and related concepts, including ethnicity, caste, class, gender, nation, and intersectionality. Discrimination, xenophobia, prejudice, bias, oppression, and privilege. [3] (P)

PHIL3003 - Formal Logic and Its Applications
Course Description

A self-contained course designed to convey an understanding of the concepts of modern formal logic, to develop convenient techniques of formal reasoning, and to make some applications of them in one or more of the following: psychology, linguistics, structuralist studies, information and computer sciences, and the foundations of mathematics. Philosophy 1003 is not required. [3] (MNS)

PHIL3004 - Advanced Asian Philosophy
Course Description

Classical Asian philosophical texts. Historical development of practices and ideas; translation and interpretation issues; comparisons with European and other traditions of thought. [3] (INT)

PHIL3005 - Jewish Philosophy
Course Description

Introduction to Jewish philosophy and the philosophical achievement of such major figures as Philo, Saadiah, Maimonides, Levinas, and selected contemporary thinkers. [3] (HCA)

PHIL3006 - Islamic Philosophy
Course Description

Introduction to the major figures of Islamic philosophy including Kindi, Razi, Farabi, Avicenna, and Ibn Khaldun. [3] (INT)

PHIL3007 - French Feminism
Course Description

Introduction to the tradition of French feminist philosophy, including relevant works by Beauvoir, Cixous, Irigaray, Kristeva, LeDoeuff, Kofmann, and others. [3] (No AXLE credit)

PHIL3008 - American Philosophy
Course Description

A study of the works of selected American philosophers from the colonial period to the present. [3] (US)

PHIL3009 - Existential Philosophy
Course Description

A study of two or three existential philosophers and selected problems that arise in relation to their thought. [3] (HCA)

PHIL3010 - Phenomenology
Course Description

Selected readings from such thinkers as Husserl, Sartre, and Merleau-Ponty on the structures of experience, the sources and limits of knowledge, mind, and body, interpersonal relations, and the meaning of freedom. [3] (HCA)

PHIL3011 - Critical Theory
Course Description

The Frankfurt School; mass culture, ideology, and modernism in the arts; the disenchantment of reason; alienation and fascism; the prospects for experience and political critique. Readings include Adorno, Horkheimer, Marcuse, Benjamin, and Habermas. [3] (HCA)

PHIL3012W - Writing as Political Resistance
Course Description

Writings from the political margins from authors under house arrest, in exile, or in prison. Expressions of active resistance to oppressive, and occasionally violent, political institutions. [3] (P)

PHIL3013 - History of Aesthetics
Course Description

History of philosophy of art, aesthetic experience, creativity, criticism, and related concepts. [3] (HCA)

PHIL3014 - Modernistic Aesthetics
Course Description

Abstraction, nontraditional media, mixed media, new media, changes in artistic institutions, and the death of art. [3] (HCA)

PHIL3103 - Immanuel Kant
Course Description

Kant's revolutionary critique of the foundations of human knowledge, moral obligation, and religious faith, with readings from his three Critiques and lesser works. [3] (HCA)

PHIL3104 - Kierkegaard and Nietzsche
Course Description

A study of selected works. [3] (HCA)

PHIL3105 - Hegel
Course Description

Selected works and themes. Experience, reason, freedom, history, and sociality. Modernity, dialectics, religion, and art. [3] (HCA)

PHIL3333 - Special Offering
Course Description

Topics vary. [3]

PHIL3600 - Philosophy of Knowledge
Course Description

Nature, sources, and scope of scientific, moral, and religious belief. Justification, knowledge, and skeptical challenges to their legitimacy. [3] (HCA)

PHIL3601 - Metaphysics
Course Description

Selected problems in metaphysics such as ultimate explanation, meaning of existence, time and eternity, freedom and determinism, and science and religion. [3] (HCA)

PHIL3602 - Philosophy of History
Course Description

Focus on alternative conceptions of time and history in Aristotle, Augustine, Kant, Hegel, Heidegger, and Benjamin. [3] (HCA)

PHIL3603 - Philosophy of Education
Course Description

Analysis of educational concepts. Educational implications of theories of knowledge and theories of the individual. Emphasis on higher education. [3] (HCA)

PHIL3604 - Gender and Sexuality
Course Description

Recent theories of the relation between sex, gender, and sexuality. Construction of gendered identities, and their relation to embodiment, gender politics, ethics and epistemology. [3] (P)

PHIL3605 - Contemporary Ethical Theory
Course Description

A study of theories about the cognitive foundations of ethical discourses. Prerequisite: 1005. [3] (HCA)

PHIL3606 - Moral Problems
Course Description

A discussion of specific moral problems such as the justification of abortion and euthanasia. Moral theories such as utilitarianism will be discussed, but the emphasis will be on their relevance to the solution of moral problems. Repeat credit for students who have completed 3606W. Prerequisite: 1005. [3] (P)

PHIL3606W - Moral Problems
Course Description

A discussion of specific moral problems such as the justification of abortion and euthanasia. Moral theories such as utilitarianism will be discussed, but the emphasis will be on their relevance to the solution of moral problems. Repeat credit for students who have completed 3606. Prerequisite: 1005. [3] (P)

PHIL3607 - Philosophy of Religion
Course Description

A study of various problems concerning religious experiences; ideas about religion and divinity. [3] (HCA)

PHIL3608 - Ethics and Medicine
Course Description

Selected ethical issues raised by clinical practice, medical theories, and biomedical research and technology. Not open to students who have earned credit for PHIL 1111-03 without permission. Total credit for this course and PHIL 1111-03 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1005, 1008, or 1008W. [3] (P)

PHIL3609 - Ethics and Business
Course Description

Moral problems in the business world including irresponsible marketing, conflict between profit and social conscience, resource use, public regulation of business, and the value of competition. Prerequisite: 1005. [3] (P)

PHIL3610 - Ethics and Law
Course Description

Moral problems in the practice of law including conflicts of interest, confidentiality, limits of advocacy, and the obligations of lawyers to clients, courts, and the public. Repeat credit for students who have completed 3610W. Prerequisite: 1005 or 1005W. [3] (SBS)

PHIL3610W - Ethics and Law
Course Description

Moral problems in the practice of law including conflicts of interest, confidentiality, limits of advocacy, and the obligations of lawyers to clients, courts, and the public. Repeat credit for students who have completed 3610. Prerequisite: 1005. [3] (SBS)

PHIL3611 - Environmental Philosophy
Course Description

Environmental ethics (animal rights, respect for nature, the land ethic), science and the natural world, the aesthetics of nature, global justice, and sustainability. [3] (P)

PHIL3612 - Ethics and Animals
Course Description

Ethical issues raised by human interactions with animals, including laboratory experiments, factory farming, hunting, zoos, and pet ownership. Challenges to ethical theory provoked by extending rights to animals. [3] (HCA)

PHIL3615 - Philosophy of Film
Course Description

Challenges posed by film forms to traditional aesthetics and the novel philosophical approaches created to deal with them. Topics include the nature of the film image, film and experiential time, cinematic genres, the problem of mass art, and feminist critiques of spectatorship. Weekly screenings. [3] (HCA)

PHIL3616 - Philosophy and the Natural Sciences
Course Description

Philosophical issues in the methodology, conceptual structure, patterns of explanation, historical development, and cultural impact of the natural sciences. Metaphysical and ethical implications. [3] (P)

PHIL3617 - Philosophy of Language
Course Description

Philosophical problems in the methodology of linguistics, relations between thought and language, theories of meaning and symbolism, the nature of metaphor, the philosophical implications of theories of language acquisition. [3] (SBS)

PHIL3618 - Philosophy and Literature
Course Description

Philosophical topics in novels or poetry. Examples include: meaning of life, linguistic meaning, good and evil, aesthetic value, and human freedom. Repeat credit for students who have completed 3618W. [3] (HCA)

PHIL3618W - Philosophy and Literature
Course Description

Philosophical topics in novels or poetry. Examples include: meaning of life, linguistic meaning, good and evil, aesthetic value, and human freedom. Repeat credit for students who have completed 3618. [3] (HCA)

PHIL3620 - Political and Social Philosophy
Course Description

Central issues and arguments concerning individual liberty, political authority, democracy, and justice. Key texts and arguments. Contemporary debates. [3] (P)

PHIL3621 - Early Modern Political Philosophy
Course Description

A study of competing accounts of the best form of political association, which differ from Locke, through the works of Machiavelli, Hobbes, Spinoza, and Rousseau. [3] (INT)

PHIL3622 - Contemporary Political Philosophy
Course Description

A focused and extended examination of selected topics in contemporary political theory, such as justice, liberty, rights, tolerance, and autonomy. Content varies depending on instructor. [3] (P)

PHIL3623 - Modern Philosophies of Law
Course Description

Contemporary theories of legal validity, legal liability (criminal and civil), and contractual obligation with special attention to the controversy between legal positivism and "natural law" theories and the assessment of contemporary economic analyses of legal rights. [3] (SBS)

PHIL3630 - Philosophy of Mind
Course Description

Selected problems in the philosophy of mind. Relation between mind and body, the nature of consciousness, the problem of other minds, the status of self-knowledge, and the possibility of machine and other intelligence. Connections with empirical investigations in related cognitive disciplines. [3] (SBS)

PHIL3635 - Ethics and Mental Health
Course Description

Understandings of mental health. Impact on categorization and treatment of mental disorder. Ethical issues in mental health care contexts. Wider social contexts. [3] (P)

PHIL3657 - Humanity, Evolution, and God
Course Description

The impact of the idea of evolution on our conception of personhood. Theistic and non-theistic approaches to philosophical anthropology, ethics and society, the theory of knowledge, the mind-body problem, and relations with the environment and other species. [3] (P)

PHIL3661 - Topics in Aesthetics
Course Description

Philosophy of art and aesthetic theory. [3] (HCA)

PHIL3665 - Racial Justice Lab
Course Description

Application of philosophical race theory to concrete problems of racial justice. Collaborative, problem-centered exercise culminating in student-designed projects. Themes vary by semester. Offered on a graded basis only. [3] (P)

PHIL3851 - Independent Readings
Course Description

Designed for majors not in the departmental honors program. Consists of a project to be carried out under the supervision of a member of the department. All projects must be approved by the department. May be repeated for a total of 12 credits in3851 and 3852 combined over a four semester period if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [1-6; maximum of 12 credits total for four semesters of PHIL 3851 and 3852] (No AXLE credit)

PHIL3852 - Independent Readings
Course Description

Designed for majors not in the departmental honors program. Consists of a project to be carried out under the supervision of a member of the department. All projects must be approved by the department. May be repeated for a total of 12 credits in 3851 and 3852 combined over a four semester period if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. [1-6; maximum of 12 credits total for four semesters of PHIL 3851 and 3852] (No AXLE credit)

PHIL3891 - Selected Topics
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

PHIL3892 - Selected Topics
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit) (No AXLE credit)

PHIL3900 - Figures in Philosophy
Course Description

[3] (HCA)

PHIL3903 - Kant's Theoretical Philosophy
Course Description

Immanuel Kant's 1781/1787 Critique of Pure Reason in context of his earlier philosophy and broader system of philosophy. [3] (HCA)

PHIL3905 - History of Normative Ethics
Course Description

Normative ethics in Western philosophy, including eudaimonism, virtue ethics, deontology, utilitarianism, and care ethics. Historical texts and contemporary applications. [3] (HCA)

PHIL3910 - History of Philosophy
Course Description

[3] (HCA)

PHIL3920 - Topics in Philosophy
Course Description

[3] (HCA)

PHIL3922 - Democracy
Course Description

Democratic government: duty to vote, alternatives to full suffrage, the epistemic dimension of democratic authority, and various cognitive dysfunctions that democracy encourages. Readings from contemporary journal literature. [3] (HCA)

PHIL4999 - Honors Independent Study
Course Description

Designed for students in the Honors Program in philosophy. Consists of guided reading, periodic reports, and work on honors thesis. May be repeated for credit once, but students may earn only up to 6 credits per semester of enrollment. [3-6; maximum of 12 credits total for all semesters of PHIL 4999] (No AXLE credit)

Physics

PHYS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

PHYS1010 - Introductory Physics
Course Description

Normally accompanied by 1010L. Motion, forces, conservation laws, light, heat, and electricity. Quantum theory, the atomic nucleus, elementary particles, and properties of materials. Special relativity, Big Bang, and cosmology. Primarily intended for those who do not expect to major in science. [3] (MNS)

PHYS1020 - Physics for Future Leaders
Course Description

General physics relevant to public policy. Energy and its generation; the greenhouse effect; light and radiation; nuclear fission and nuclear weapons; quantum mechanics and semiconductors; science on the internet; government funding of science. [3] (MNS)

PHYS1020L - Introductory Physics Laboratory
Course Description

Laboratory to accompany 1020. Pre- or Corequisite: 1020. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 1020. Offered on a graded basis only. [1] (No AXLE credit)

PHYS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

PHYS1501 - Introductory Physics for the Life Sciences I
Course Description

Normally accompanied by 1601L. Calculus-based introduction to physics taught within the context of life science applications. Mechanics, fluids, sound, thermal, and statistical physics. Prospective majors are strongly advised to take Math 1300 or a higher level calculus course. Prior study of calculus or concurrent enrollment in Math 1100, 1200, or 1300 is expected. Serves as repeat credit for PHYS 1601. Not open to students who have earned credit for 1901 without permission. Credit for this course and 1901 will not exceed 5 credit hours. [3] (MNS)

PHYS1501L - Laboratory for Introductory Physics for the Life Sciences I
Course Description

Laboratory to accompany Physics 1501. Normally accompanied by 1501. Satisfies the AXLE lab course requirement when completed with 1501 (strongly preferred) or 1601. Serves as repeat credit for PHYS 1601L. Not open to students who have earned credit for 1901 without permission. Credit for this course and 1901 will not exceed 5 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [1] (No AXLE credit)

PHYS1502 - Introductory Physics for the Life Sciences II
Course Description

Normally accompanied by 1502L. Calculus-based introduction to physics taught within the context of life science applications. Electricity and magnetism; geometric and physical optics; atomic, nuclear, and quantum physics. Prospective majors are strongly advised to take Math 1301 or a higher level calculus course. Prior study of calculus or concurrent enrollment in Math 1100, 1201, or 1301 is expected. Serves as repeat credit for PHYS 1602. Not open to students who have earned credit for 1902 without permission. Credit for this course and 1902 will not exceed 5 credit hours. Prerequisite: PHYS 1501. [3] (MNS)

PHYS1502L - Laboratory for Introductory Physics for the Life Sciences II
Course Description

Laboratory to accompany Physics 1502. Normally accompanied by 1502. Satisfies the AXLE lab course requirement when completed with 1502 (strongly preferred) or 1602. Serves as repeat credit for PHYS 1602L. Not open to students who have earned credit for 1902 without permission. Credit for this course and 1902 will not exceed 5 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [1] (No AXLE credit)

PHYS1601 - General Physics I
Course Description

Normally accompanied by 1601L. Calculus-based introduction to general physics and its applications. Mechanics, heat, and sound. Potential majors are strongly advised to take MATH 1300 or a higher level calculus course. Prior study of calculus or concurrent enrollment in MATH 1200 or 1300 is expected. Serves as repeat credit for PHYS 1501. Not open to students who have earned credit for 1901 without permission. Credit for this course and 1901 will not exceed 5 hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [3] (MNS)

PHYS1601L - General Physics Laboratory I
Course Description

Laboratory to accompany Physics 1501 and Physics 1601. Normally accompanied by 1501 or 1601. Satisfies the AXLE lab course requirement when completed with 1501 or 1601. Serves as repeat credit for PHYS 1501L. Not open to students who have earned credit for 1901 without permission. Credit for this course and 1901 will not exceed 5 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [1] (No AXLE credit)

PHYS1602 - General Physics II
Course Description

Normally accompanied by 1602L. Calculus-based introduction to general physics and its applications. Electricity and magnetism, optics, modern physics. Potential majors are strongly advised to take MATH 1301 or a higher level calculus course. Prior study of calculus or concurrent enrollment in MATH 1201 or 1301 is expected. Serves as repeat credit for PHYS 1502. Not open to students who have earned credit for 1902 without permission. Credit for this course and 1902 will not exceed 5 hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [3] (MNS)

PHYS1602L - General Physics Laboratory II
Course Description

Laboratory to accompany Physics 1602. Normally accompanied by 1602. Satisfies the AXLE lab course requirement when completed with 1602 (strongly preferred) or 1502. Serves as repeat credit for PHYS 1502L. Not open to students who have earned credit for 1902 without permission. Credit for this course and 1902 will not exceed 5 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. [1] (No AXLE credit)

PHYS1911 - Principles of Physics I
Course Description

Classical dynamics, conservation laws, gravitation, wave motion, and thermodynamics. Designed for first-year students who plan to major in physics or in related disciplines. Three lectures and a weekly discussion on modern topics of interest. Not open to students who have earned credit in PHYS 1501, 1601, 1901, or 2051 without permission. Total credit for this course and PHYS 1501, 1601, or 2051 will not exceed 4 credit hours. Total credit for this course and PHYS 1901 will not exeed 5 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. Corequisite: MATH 1301. [4] (MNS)

PHYS1912 - Principles of Physics II
Course Description

Continuation of 1911. Electromagnetism, optics, relativity, quantum mechanics, and atomic and nuclear physics. Designed for first-year students who plan to major in physics or in related disciplines. Three lectures and a weekly discussion on modern topics of interest. Not open to students who have earned credit in PHYS 1502, 1602, 1902, or 2053 without permission. Total credit for this course and PHYS 1502, 1602, or 2053 will not exceed 4 credit hours. Total credit for this course and PHYS 1902 will not exceed 5 credit hours. Credit reduced from second course taken (or test or transfer credit) as appropriate. Corequisite: MATH 2300 or 2500. [4] (MNS)

PHYS1912L - Laboratory Skills for Physicists I
Course Description

Fundamental laboratory skills and techniques. Experimental design, instrumentation, data handling and analysis, documentation, presentation of results. Prerequisite: 1501, 1601, 1911, or 2051. Corequisite: 1502, 1602, 1912, or 2053. [1] (No AXLE credit)

PHYS2210 - Classical and Modern Optics
Course Description

Geometrical optics, including reflection, refraction, ray tracing, aberrations, and interference. Physical optics, including wave theory, absorption, dispersion, diffraction, and polarization. Properties of light from lasers and synchrotron sources. Photodetectors and optical technology. Prerequisite: either 1502 or 1602 or 1912; and either MATH 1201 or 1301. [3] (MNS)

PHYS2255 - Modern Physics and the Quantum World
Course Description

Relativity. Experimental basis of quantum physics. Structure of the atom. Wave properties of matter. The hydrogen atom. Atomic and statistical physics. Prerequisite: either 1502, 1602, 1902 (or 1912), or 2053. Corequisite: MATH 2300 or 2500. [3] (MNS)

PHYS2255L - Laboratory Skills for Physicists II
Course Description

Fundamental laboratory skills and techniques. Experimental design, instrumentation, data handling and analysis, documentation, presentation of results. Prerequisite: 1502, 1602, 1912, or 2053; and 1912L or one of 1501L or 1601L and one of 1502L or 1602L. Corequisite: 2255 or 3651. [1] (No AXLE credit)

PHYS2275 - Classical Mechanics
Course Description

Calculus of variations. Lagrangian and Hamiltonian dynamics. Conservation laws. Vector algebra and coordinate transformations. Gravity and potential energy. Free, forced, damped, and nonlinear harmonic oscillations. The anharmonic oscillator and chaos. Orbital and rotational angular momentum. Gravitational and Coulomb central-force problems. Motion in non-inertial reference frames. Coupled oscillators and normal modes. Rigid-body motion. Continuous systems and the wave equation. Serves as repeat credit for PHYS 2270 and 2271. Prerequisite: 2255 or 3651. [3] (MNS)

PHYS2290 - Electricity, Magnetism, and Electrodynamics I
Course Description

Electrostatic fields and potentials. Gauss's law. Electrical properties of insulators, semiconductors, and metals. The Lorentz force. Magnetic fields and forces. Electromagnetic induction, Maxwell's equations, and electromagnetic waves. Prerequisite: 2255 or 3651; and either MATH 2400, 2420, or 2610. [3] (MNS)

PHYS2291 - Electricity, Magnetism, and Electrodynamics II
Course Description

Electromagnetic waves in dielectrics and conductors. Electromagnetic radiation in waveguide structures. Relativistic electrodynamics. Magnetism as a relativistic phenomenon. Prerequisite: 2290. [3] (MNS)

PHYS2300 - Quantum Computation
Course Description

Algorithms, error correction, and cryptography. Physics of information processing, quantum logic. Shor's factoring algorithm and Grover's search algorithm. Quantum circuits, measurements, entanglement, and teleportation. No-cloning and no-deleting theorems. Prerequisite: Math 1300. (MNS) [3]

PHYS2660 - Experimental Nanoscale Fabrication and Characterization
Course Description

Laboratory course introduction to nanofabrication and characterization. Independent and original research in nanotechnology and nanoscience. Nanomaterials, nanoelectronics, and photonics. [3] (MNS)

PHYS2953L - Advanced Physics Laboratory: Introduction to Experimental Research
Course Description

Fundamental physics experiments and measurements. Statistical analysis of measured data. One laboratory per week. Prerequisite: 2255L, and either 2255 or 3651; or 1912 and either 2255 or 3651; or either 2250W or 2260W. [1] (No AXLE credit)

PHYS3122 - Physics of Living Systems
Course Description

Physical principles applied to biological phenomena. Development of physical models of biological systems on scales ranging from molecules to organisms. Biological applications of mechanics, thermodynamics, and dynamical systems. Prerequisite: 1502, 1602, 1912, or 2053; and MATH 2400, 2420, or 2610. [3] (MNS)

PHYS3125 - Health Physics
Course Description

Theory and instrumentation in health physics and radiological physics. Radiation shielding design, methods of external and internal dosimetry, and radiation regulatory issues. Prerequisite: 2255 and either Math 1201 or 1301. [3] (MNS)

PHYS3200 - Statistical Physics
Course Description

Temperature, work, heat, and the first law of thermodynamics. Entropy and the second law of thermodynamics. Kinetic theory of gases with applications to ideal gases and electromagnetic radiation. Serves as repeat credit for students who have completed 3207. Prerequisite or corequisite: 2270 or 2275. [3] (MNS)

PHYS3600 - Seminar in Presenting Physics Research
Course Description

Introduction, instruction, and practice in skills for presenting scientific research results. May be repeated for credit once, but students may earn only 1 credit per semester of enrollment and may count only 1 credit toward the major or minor in physics. Prerequisite: major or minor in Physics; and 2255 or 3651. [1] (No AXLE credit)

PHYS3640 - Physics of Condensed Matter
Course Description

Crystal structure and diffraction. Phonons and lattice vibrations. Free-electron theory of metals. Elementary band theory of solids. Semiconductors. Optical properties of insulators. Applications to solid-state devices, magnetism, and superconductivity. Prerequisite: 2275 and 3200. Corequisite: 2255. [3] (MNS)

PHYS3645 - Radiation Detectors and Measurement
Course Description

Basic physics principles and applications of radiation detecting instruments, with laboratory exercises. Techniques and instrumentation for nuclear radiation detection and measurements as they relate to health physics (radiation safety) and nuclear physics. Prerequisite: 2255 or 3125. [4] (MNS)

PHYS3651 - Quantum Mechanics I
Course Description

Wave-particle duality, indeterminacy, superposition, the Schr√∂dinger equation, angular momentum, the hydrogen atom, and spin and indistinguishability. Prerequisite: 2255; and Mathematics: MATH 2400; or one of (MATH 2410, 2600, 2501) and one of (MATH 2420, 2610). [3] (MNS)

PHYS3652 - Quantum Mechanics II
Course Description

Time-independent and time-dependent perturbation theory, matrix theory, scattering, applications to atomic physics, condensed matter physics, and astrophysics. Prerequisite: 2290 and 3651. [3] (MNS)

PHYS3660 - Introduction to Particle Physics
Course Description

Weak, strong, and electromagnetic forces as evidenced by the interactions of elementary particles. Classification of particles and experimental techniques. Corequisite: 2255 or 3651. [3] (MNS)

PHYS3790 - Computational Physics
Course Description

Topics in modern physics analyzed exclusively with computer programs. Finite difference approaches to the Schr√∂dinger and Maxwell equations. Solutions of nonlinear equations. Molecular dynamics. Monte Carlo simulations. Growth models and random walks. Serves as repeat credit for PHYS 2237. Prerequisite: Any three of 2255, 2275, 2290, 3200, 3651. [3] (MNS)

PHYS3820 - Methods in Physics Laboratory Teaching
Course Description

Developing and running physics labs and classroom lecture demonstrations. Understanding safety protocols. Enrollment open only to students who are Secondary Education, Elementary Education, or Education Studies majors, are also either Physics majors or minors, and who have completed any 12 credit hours in satisfaction of requirements for major or minor in Physics. [3] (MNS)

PHYS3850 - Undergraduate Research
Course Description

Research and scholarly investigation or directed readings in physics under close supervision of sponsoring faculty member. Enrollment by arrangement with sponsoring faculty member and approval of director of undergraduate studies. May be repeated for credit, for a total of no more than 10 total credit hours and for no more than 5 credit hours per semester. [1-5] (No AXLE credit)

PHYS3890 - Selected Topics
Course Description

[1-3] (No AXLE credit)

PHYS4005 - Mathematical Methods for Physicists
Course Description

Linear spaces and operators; matrix algebra; differential equations; Green's function; and complex analysis. Variational calculus; perturbation methods; group theory. Prerequisite: 2275, 2290; and one of MATH 2400, 2420, or 2610. [3] (MNS)

PHYS4020 - Advanced Electrodynamics
Course Description

Electrostatics, potentials, boundary value problems, multipole moments, polarization, magnetostatics, Maxwell's equations, electromagnetic wave propagation, dissipative and conductive media. Prerequisite or corequisite: 4005. [3] (MNS)

PHYS4998 - Honors Research and Senior Thesis
Course Description

Independent experimental or theoretical investigations of basic problems in physics under faculty supervision, culminating in a written thesis submitted and an oral defense presented to a departmental faculty examination committee. Required for departmental honors in Physics. Enrollment by arrangement with sponsoring faculty member and approval of director of undergraduate studies. May be repeated for a total of 10 credits, but students may earn only up to 6 credits per semester of enrollment. Prerequisite: major in Physics, junior or senior standing. [1-6] (No AXLE credit)

Political Science

PSCI1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

PSCI1100 - Introduction to American Government and Politics
Course Description

A descriptive survey of the constitutional and structural principles, processes, and functions of the American governmental system. [3] (US)

PSCI1101 - Introduction to Comparative Politics
Course Description

Democracy, communism, and authoritarian rule in developed and developing countries; political institutions and public policy in diverse national settings; principles of comparative analysis. [3] (SBS)

PSCI1102 - Introduction to International Politics
Course Description

Significant patterns and trends in twentieth-and twenty-first-century world politics: modes of conducting relations among nations, instruments for promoting national and supranational interests, and controls over international disputes. Emphasis upon episodes throwing light on the causes of war and the conditions of peace. [3] (SBS)

PSCI1103 - Justice
Course Description

Different understandings of and debates concerning justice. Equality and freedom, individualism and community, diversity, patriotism, and representation. [3] (HCA)

PSCI1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

PSCI1150 - U.S. Elections
Course Description

Examination of the presidential and congressional elections. The recruitment of candidates, nomination processes, financing campaigns, media coverage, polling, predictive models, and implications of results. (during presidential election years). [3] (US)

PSCI2170 - ROCCA Lab I: Collaborative Research Skills
Course Description

Basics of research design and social science communication. Participate in collaborative research projects under faculty supervision in the ROCCA Lab. Not open to students who have earned credit for 3895 section 01 offered spring 2020. Requires application to instructor. [3] (SBS)

PSCI2171 - ROCCA Lab II: Quantitative Reasoning
Course Description

The intuition of quantitative reasoning. Collaborative research under faculty supervision in the ROCCA Lab. Not open to students who have completed 3895 section 01 offered spring 2020. Requires application to instructor. [3] (SBS)

PSCI2201 - Power and Resistance
Course Description

Modern and contemporary political theories of power and resistance. Disciplinary power, biopower, sovereign power, and economic power. Law, violence, and revolution. [3] (HCA)

PSCI2202 - Ancient Political Thought
Course Description

Greek and Roman political traditions. Plato, Aristotle, Cicero, and early Christian thinkers. Questions of justice, equality, democracy, and political knowledge. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI2203 - History of Modern Political Philosophy
Course Description

Intensive analysis of the principal political philosophers in the modern tradition. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI2204W - American Political Thought
Course Description

An analytical study of American political theories and their impact upon our political institutions. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (US)

PSCI2205 - Contemporary Political Theory
Course Description

Debates in contemporary political thought. Justice, democracy, freedom, identity, and individualism. Includes emerging contemporary theories. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI2207 - Liberalism and Its Critics
Course Description

The liberal tradition in political theory and its major challengers. Critical debates surrounding the relationship between individuals and political community, rights, freedom and equality. Repeat credit for students who have completed 2207W. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI2207W - Liberalism and Its Critics
Course Description

The liberal tradition in political theory and its major challengers. Critical debates surrounding the relationship between individuals and political community, rights, freedom and equality. Repeat credit for students who have completed 2207. Prerequisite or corequisite: 1100, 1101 1102, 1103, or 1150. [3] (HCA)

PSCI2208 - Law, Politics, and Justice
Course Description

Contemporary and classical theories of law and society: rights theories, gender and the law; law and transitions to democracy; law between nations. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI2209 - Issues in Political Theory
Course Description

Topics vary from semester to semester. May be repeated once if there is no overlap with previous offerings. Prerequisite: 2202, 2203, or 2205. [3] (No AXLE credit)

PSCI2210 - West European Politics
Course Description

Analysis of political development, social forces, institutions, and public policy in Great Britain, France, Germany, Italy, and Sweden. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI2211 - Terrorism and Intrastate Conflict
Course Description

Intrastate conflict and terrorism. Political violence. Organizational economics of militant groups; strategies for counterinsurgency. Data explorations and quantitative analyses. Offered on a graded basis only. No credit for students who have earned credit for 3895 section 02 offered fall 2018 or 3895 section 01 offered fall 2017. Prerequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2212W - Populism in Europe and Beyond
Course Description

Rise of populist parties in advanced democracies. Theoretical and conceptual questions underlying the nature of populism. Right-wing populist parties from programs and voter base to organization and party leadership. Not open to students who have earned credit for 3894 section 01 offered fall 2019, or for EUS 2240 section 02 offered fall 2018, or for EUS 2240 section 01 offered spring 2018, or for 3895 section 01 offered spring 2017. [3] (SBS)

PSCI2213 - Democratization and Political Development
Course Description

Comparative study of political development, with a focus on institutions. The effect of political choices about voting systems, executive and legislative powers, cabinet formation, and other institutions on political competition, parties and government stability. Cases from established democracies and countries undergoing democratization. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2214 - Democratic Erosion in Comparative Perspective
Course Description

Comparative study of democratic erosion with a focus on democratic decline in the twenty-first century. Characteristics of modern democratic regimes. Causes and consequences of democratic erosion. Corruption, disinformation ("fake news"), inequality, polarization, and populism. Prerequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2215 - Change in Developing Countries
Course Description

Comparative study of political and economic change in developing countries. Political implications of ethnicity, economic dependency, and environmental degradation. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2216 - The Chinese Political System
Course Description

Governmental institutions and political processes in the People's Republic of China with emphasis upon the interaction of traditional and revolutionary elements. Some attention to Taiwan since 1950 and to the overseas Chinese as parts of the Chinese political universe. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI2217 - Development in South Asia
Course Description

Political economy of development in South Asian countries, with a focus on India, Pakistan, and Bangladesh. Democracy, growth, poverty, inequality, education, health, and gender equity. Offered on a graded basis only. No credit for students who have earned credit for 3894-01 offered fall 2016, fall 2017, or fall 2018. [3] (SBS)

PSCI2219 - Politics of Mexico
Course Description

A survey of contemporary Mexican politics from a comparative perspective. Interaction of economic, social, and political forces that led to the demise of one of the world's most durable one-party political regimes and the prolonged transition to democracy. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2220 - Crisis Diplomacy
Course Description

Foreign policy decision making and strategy. Emphasis on differences between crises that lead to war and those that do not. Foreign relations of Britain, France, Germany, Russia, and Japan. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2221 - Causes of War
Course Description

Scientific study of the onset of expansion and consequences of war; conditions of peace, emphasizing alliances, arms races, and crisis escalation. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2222 - American Foreign Policy
Course Description

Critical analysis of major international and domestic factors shaping U.S. foreign relations as reflected in selected twentieth- and twenty-first-century experiences. Not open to students who have earned credit for PSCI 1111-01 without permission. Total credit for this course and PSCI 1111-01 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2223 - European Political Economy and Economic Institutions
Course Description

Policy-making processes of key economic institutions that influence the global political economy. International and financial regulatory reforms. World Trade Organization negotiations and current European economic issues. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2224W - Gender and Politics
Course Description

Gender inequality; political representation; women and politics. Not open to students who have earned credit for 3894 section 02 offered spring 2020, 3894 section 02 offered spring 2018. [3] (SBS)

PSCI2225 - International Political Economy
Course Description

Survey of major issues involving the interaction of political and economic forces at the global level. Particular attention to theories of interdependence and imperialism, the position of developing countries in the international system, multinational corporations, and the economic origins of war. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2226 - International Law and Organization
Course Description

The role of international law and international organizations in the contemporary global political system. Focus on the evolution and impact of international law, the United Nations, the International Monetary Fund (IMF), and selected regional organizations. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2228W - The Political Economy of Gender
Course Description

Female labor force participation; women's political representation; gender equality. Not open to students who have earned credit for PSCI 3894 section 01 offered spring 2020. [3] (SBS)

PSCI2230 - Middle East Politics
Course Description

Cross-national analysis of political institutions, political economies, and processes of change in the Middle East. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2231 - The Politics of Autocracy
Course Description

Contemporary autocracy, broadly construed. How regimes come to power; institutional choices leaders make and their implications for other outcomes such as citizen welfare and prospects for democratization. Serves as repeat credit for PSCI 3894, section 02 in Fall 2021. [3] (SBS)

PSCI2235 - The United States Military
Course Description

Structure and culture of the U.S. military across all branches. Policy issues related to the armed forces. The soldier and military in art and popular culture. [3] (US)

PSCI2236 - The Politics of Global Inequality
Course Description

Causes of international inequality in the distribution of wealth. The emergence of rich and poor nations, and rich and poor people. Factors related to economic development, and their impact on income distribution. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2237 - African Politics
Course Description

Pre-colonial to the present. State-building, socioeconomic development, public service provision, and foreign interventions. Conflict including: separatism, insurgency, slavery, genocide, and gender-based violence. Rise of democracy including party systems, voting behavior, electoral competition, fraud. Identity politics of ethnicity, gender, class, and clash of Western and local norms. Offered on a graded basis only. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2238 - Identity Politics in the Non-Western World
Course Description

Causes and consequences of the politics of racial and ethnic identities across the developing world. Ethnic politics, affirmative action, immigration, urbanization, and violent conflict. [3] (SBS)

PSCI2239 - Ethnic Politics
Course Description

Effect of ethnic identity and ethnic heterogeneity on political phenomena such as elections, violence, party formation, democracy, development. Effect of political phenomenon on ethnic identity activation and change in ethnic categories and heterogeneity. [3] (SBS)

PSCI2240 - Political Parties
Course Description

Theories of party formation, organization, and behavior. Historical development of party systems. Criteria for the comparative evaluation of party systems. Parties as instruments of citizen control. Implications for electoral outcomes, coalition formation, legislative decision making, and public policy. Prerequisite or co-requisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2240W - Political Parties
Course Description

Theories of party formation, organization, and behavior. Historical development of party systems. Criteria for the comparative evaluation of party systems. Parties as instruments of citizen control. Implications for electoral outcomes, coalition formation, legislative decision making, and public policy. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. Serves as repeat credit for students who have completed 2240. [3] (SBS)

PSCI2241 - U.S. State Governments
Course Description

Description Influence of U.S. state governments in daily life. Constitutional framework surrounding federalism vis-a-vis structures of state governing bodies. Electoral systems. Representation by the three branches of government. Public policymaking on the state level. [3] (SBS)

PSCI2242W - Inter-branch Policy-making in the United States
Course Description

Policy-making in the United States by all three branches of government. Political conflict between Congress, the president, executive branch agencies, and the courts. Inter-branch bargaining over public policy. [3] (SBS)

PSCI2243 - Political Campaigns and the Electoral Process
Course Description

Theories of representation and democratic accountability; electoral strategies and tactics, including political polling and analysis. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2244W - Congress, the President, and Public Schools
Course Description

Political mechanisms driving education policy. Federalism, separation of church and state, organized interests, teachers, testing and accountability, school choice, grants-in-aid, school lunches, desegregation, and education of children with disabilities. Serves as repeat credit for students who completed 3893-04 in spring 2022. Prerequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2245 - The American Presidency
Course Description

Constitutional, historical, and political aspects. Attention to electing and nominating president, presidential leadership and personality, governing, and relations with Congress and the public. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (US)

PSCI2246W - Civil Conflict and Civilians
Course Description

Regional case studies of territorial jurisdiction, succession, natural resources, colonial legacies, and socio-political identities. Criminal conflict in Mexico; intervention in El Salvador and Guatemala; African civil wars; and failed uprisings in the Middle East. Social movements and out-migration. Causes, duration, and consequences of civil conflicts. [3] (SBS)

PSCI2249 - Elections and Voting Around the World
Course Description

Comparative analysis of elections. Theories of representation, voter turnout, voter choice, and campaign dynamics. [3] (SBS)

PSCI2251 - The Politics of U.S. and Global Immigration
Course Description

Political, philosophical, and moral issues. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI2252 - The Politics of Migration Across the Americas
Course Description

Cross-national analysis of migration trends. Political causes and consequences of migration. Immigration and asylum policies across Americas; focus on U.S., Mexico, Central America, Venezuela. Prerequisite or co-requisite: PSCI 1100, 1101, 1102, or 1103 [3] (SBS)

PSCI2253 - Public Administration
Course Description

What administrative agencies do and why. Effective management in the public sector, including public budgeting, implementation, personnel management, and communication with the public and the press. Serves as repeat credit for PSCI 3893-03 in Spring 2017 and PSCI 3893-01 in Fall 2015. [3] (SBS)

PSCI2254W - Research on Immigrant Nashville
Course Description

Immigration and refugee policy. Political, legal, and social aspects of refugee/immigrant communities in Nashville. Prerequisite: PSCI 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2255 - Public Policy Problems
Course Description

Specific problems of public policies and their relations to political and institutional structures. Particular policy problems vary from semester to semester. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

PSCI2256 - Politics of Public Policy
Course Description

Understanding and navigating the policy process. Public opinion, media, elections, interest groups, and agenda settings. Legislatures, executives, decision making, implementation, and policy feedback. Current policy issues. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2259 - Political Strategy and Game Theory
Course Description

Campaigns and elections, legislative politics, political bargaining, and political organization. Applications of decision and game theory. Models of complete and perfect information, and games of incomplete information. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2262 - The Judicial Process
Course Description

Functioning of the judiciary in the American political process; operation and powers of the courts; non-legal aspects of the judicial process; political role and effects of judicial decisions. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2263 - Religion and Politics
Course Description

Religion in modern societies. Faith and civic culture, religion's presence in the public square, religion and colonialism, abortion, gay marriage, faith-based initiatives. Historical works and contemporary contributions to debates. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI2264W - Ideas and Presidential Power: From the Founding to the Present
Course Description

How ideas have served as claims to presidential power and transformed the presidency as an institution. Separation of powers, executive power, Commander in Chief, mandates, national representation, responsible party government, unitary executive theory, Deep State, descriptive representation, social movements, and American exceptionalism. [3] (SBS)

PSCI2265 - Constitutional Law: Powers and Structures of Government
Course Description

U.S. constitutional system and fundamental principles of constitutional interpretation. Judicial development of principles of distribution and scope of governmental powers. Case method. No credit for students who have earned credit for 261. Repeat credit for students who completed 261a prior to fall 2009. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (US)

PSCI2266 - Constitutional Law: Civil Liberties and Rights
Course Description

Supreme Court's interpretation of the Bill of Rights and the Fourteenth Amendment. Case method. No credit for students who have earned credit for 261. Repeat credit for students who earned credit for 261b prior to fall 2009. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (US)

PSCI2267 - Participation and Political Representation in America
Course Description

History of voting rights and the efficacy of representation in the American political system. Felony disenfranchisement, race and politics, and redistricting. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (US)

PSCI2268 - Courts and Social Policy
Course Description

Court boundaries vis-a-vis role in public policy formation and institutional management. Intrusion into, or proper functioning of, other government institutions such as Congress, the Presidency, or state governments. Basis of law versus political preferences of the judges. Court's role in supporting or undermining democratic government. [3-4] (US)

PSCI2269 - U.S. Law and Representation
Course Description

Election law and democratic institutions of governance. Voting systems. Race and representation. Case method. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (US)

PSCI2270 - Conducting Political Research
Course Description

Research sources, designs, and methods used by political scientists. Locating and accessing data, the logic of causal inferences, and basic data presentation and analysis. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2273 - Conflict Management
Course Description

Conflict management in international and domestic disputes. Negotiation, mediation, adjudication, intervention, and peacekeeping. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2274 - Nature of War
Course Description

Warfare from ancient to contemporary times. Western and non-Western perspectives. Views from political science, philosophy, history, and official U.S. military doctrine. Interplay among international politics, military strategy, technology, and psychology. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2275 - Politics and Strategy of Weapons of Mass Destruction
Course Description

Causes and effects of the spread of nuclear, biological and chemical weapons, and the history of their use. Responses to the proliferation of WMD, including deterrence, preventive war, and non-proliferation agreements. Nuclear strategy from the Cold War to the present; WMD terrorism. Prerequisite: 1102. [3] (SBS)

PSCI2278 - Music, Politics, & Power in Comparative Perspective
Course Description

Popular music and politics in comparative context. Music as reflection and catalyst of political change. War and violent conflict, dictatorship, elections, identity, protests, and economic development. Musical composition and lyricism. Impact of music on political events and phenomena, particularly outside the context of the United States. [3] (P)

PSCI2279 - Logic of Politics
Course Description

Rational choice analysis of politics. Individual and collective choice. Collective action, public goods, and externalities. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI2300 - Introduction to Data Science for Politics
Course Description

Problems and techniques using data and statistics to describe and understand political phenomena. [3] (SBS)

PSCI2310 - Understanding Policy Data: Analysis and Interpretation
Course Description

Methodology of empirical social science research; design and interpretation; inferences and applicability. Identifying a research question to collecting data to establishing and implementing a suitable model for analysis. Not open to students who completed 3894-01 offered spring 2022. [3] (SBS)

PSCI2321 - Solving Political Problems with Data
Course Description

Data science and research methods applied to real-world problems. Quantitative analysis in a small-group setting. Data wrangling, data visualization, statistical analysis, R programming, writing and interpretation of analytic reports. Prerequisite: 2300 or DS 1000. [3] (No Axle Credit)

PSCI2400W - Political Economy of Corruption
Course Description

Concepts and measures of corruption; corruption in different arenas of the public sector; anti-corruption strategies. Case studies from political science, economics, and anthropology. Offered on a graded basis only. Serves as repeat credit for students who have completed 3894 section 02 offered Fall 2020. Prerequisite or corequisite: PSCI 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI2405W - Political Economy of International Development
Course Description

Links between politics, economics, and public policy in international development, through both theoretical and applied perspectives. State building, democracy, rule of law, endowments, colonialism, education, healthcare, social assistance, and gender. Case studies from around the world. Not open to students who have completed 3894 section 02 offered spring 2021. [3] (SBS)

PSCI3150 - Board Games and American Politics
Course Description

Understanding American politics through board games and other simulations. Examines important themes of American politics, including the Constitution, elections, partisanship, bureaucracy, conflict, and diplomacy. [3] (SBS)

PSCI3206 - Radical Political Theory
Course Description

Major frameworks of modern and contemporary political theory. Subjection and domination, communism and capitalism, feminism and politics of work, neoliberalism and biopower, and colonialism and politics of race. [3] (HCA)

PSCI3211 - The European Union
Course Description

Political and economic integration. Origins, institutions, decision processes, policies, achievements, and prospects of the European integration movement. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI3217 - Latin American Politics
Course Description

Cross-national analysis of political institutions, cultures, and processes of change in Latin America. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI3218 - Public Opinion and Democracy in Latin America
Course Description

Practicum on survey research methods with applications in Latin America. Questionnaire design, analyzing survey data, and interpreting results. Serves as repeat credit for PSCI 3894-05 in Spring 2017. [3] (SBS)

PSCI3219 - La pol√≠tica de Am√©rica Latina
Course Description

Optional discussion taught in Spanish. Open to students concurrently enrolled in PSCI 3217, and who have proficiency in Spanish at or above intermediate-level. Corequisite: 3217. [1] (No AXLE credit)

PSCI3227 - International Politics of East Asia
Course Description

Political relations between governments in East Asia; role of East Asia in the world. Theories applied to contemporary issues. Economic interdependence, security challenges, and China as a global power. Military alliances, nuclear weapons, territorial disputes, and prospects for armed conflict. Prerequisite or corequisite: 1100, 1101, or 1102. [3] (SBS)

PSCI3228 - International Politics of Latin America
Course Description

Examination of Latin America's role in the international and inter-American system. Special attention to the international response to revolutionary change in the area, and to the region's major actors and their changing relationship with the United States, with other major powers, and with other actors such as multinational corporations and international financial institutions. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI3229 - Strategy and International Politics
Course Description

Strategic behavior and strategic choices arising from interactive decision making within the context of international politics. General principles of strategy. In-class experiments and game playing. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3235 - Political Islam
Course Description

Rise of political Islam. Origins, goals, and practices of specific Islamic groups throughout the Middle East. Global and local causes of Islamic political mobilization, and the American response to that mobilization. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI3241 - American Public Opinion and Voting Behavior
Course Description

The development and dynamics of political opinion and its effects on voting and public policy. Models of political behavior. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3242 - Police and Prisons
Course Description

Political mechanisms driving crime policy, policing outcomes, and modern mass incarceration. Theories of punishment, racial disparities, public opinion, and reform. Serves as repeat credit for PSCI 3891-01 section 01 in Spring 2017. [3] (SBS)

PSCI3243 - Urban Politics
Course Description

Issues and challenges confronting American cities and metropolitan areas. Policy remedies and options available to government and the private sector. Prerequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3244 - The Legislative Process
Course Description

Legislative organization and processes in the U.S. Congress. Attention to parties, elections, institutional structure, interest groups, and other branches of government as they relate to the legislative process. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3246 - American Political Development
Course Description

Political change in the United States. State formation and evolving structure and capacities of American national government. Construction of the political community. How governing institutions have adapted to change. Roots of present-day events and issues in American politics. [3] (SBS)

PSCI3247 - American Political Culture
Course Description

Content, historical development, and political consequences of the American public's deeply rooted values concerning how the political system ought to work and the ends it ought to serve. Attention to regional variation. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (US)

PSCI3249 - American Public Opinion and American Politics
Course Description

Origins and effects of public opinion on politics in the United States. Influence of values, emotion, prejudice, and news information on individual political views. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3250 - Group Conflict and Cooperation in U.S. Politics
Course Description

Psychological and institutional sources of division and unity in American politics. Identity formation and change, explicit and implicit racial attitudes, and political tolerance. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3252 - Business and Public Policy
Course Description

Relationships among business, public policy, and political strategy in the United States and other political systems. Lobbying and legislative politics, antitrust and regulation, intellectual property, international trade, and ethics and corporate social responsibility. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3253 - Ethics and Public Policy
Course Description

Political and moral values in assessing policy-making, public policies and processes, and policy impacts. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI3254 - Political Psychology
Course Description

Interface between politics and the psychological processes of individuals and groups. Cognition, emotion, identity and intergroup relations, leadership, and extremism. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3258 - Democratic Theory and Practice
Course Description

Theories of democratic institutions, practices, and values in historical and contemporary political thought. Impact of popular participation on issues of justice, equality, individual freedom, and political power. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI3260 - Introduction to American Law
Course Description

Law as a component of public policy and the political system; the elements and rationale of private law. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3264W - Global Feminisms
Course Description

Global politics through feminist perspectives. Interrelated systems of power. Race, gender, sexuality, colonialism, and imperialism. Health, genocide, and slavery. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (INT)

PSCI3265 - Human Rights in Activism
Course Description

Role of human rights in struggles against injustice. Identification of key problems of injustice addressed by a human rights framework. Problems with human rights as a tool for activism. Discussion in contemporary politics. Intellectual and legal traditions that have developed around human rights. No credit for students who have earned credit for PSCI 3896 section 01 offered fall 2016. Offered on a graded basis only. [3] (P)

PSCI3266 - Climate Change Justice
Course Description

The challenge of addressing catastrophic climate change. Rationales for integrating or separating global climate and justice goals. Relationship between greenhouse gas emissions and poverty. Global and local public and private policy for climate change and justice. Offered on a graded basis only. [3] (INT)

PSCI3268 - American Health Policy
Course Description

Structure of the American health care system. Challenges to providing care and improving health. Private and public insurance, inequality, cost growth, quality of care, and reform. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3270 - Human Rights
Course Description

Factors affecting government violation of human rights. Patterns of violations and their explanations. Domestic and international solutions to protect human rights. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3271 - Feminist Theory and Research
Course Description

Introduction to feminist works in the social sciences. Development of feminist analysis. Important issues, feminist theories, and approaches to social criticism. Methodological challenges to feminist research. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (P)

PSCI3272 - The War in Iraq (2003-2011)
Course Description

The structure of and changes in the U.S. military during the war. Strategic and tactical dilemmas. Development of Iraqi political institutions. American foreign policy making. Serves as repeat credit for PSCI 3272W. Serves as repeat credit for PSCI 3894, section 01, in Spring 2023. [3] (US)

PSCI3272W - The War in Iraq, 2003-2011
Course Description

The structure of and changes in the U.S. military. Development of Iraqi political institutions. American foreign policy making. Serves as repeat credit for students who completed 287 section 1 in fall 2010 or HUM 161 section 1 in fall 2009. Prerequisite or corequisite: 1100, 1101 1102, 1103, or 1150. [3] (US)

PSCI3273 - Networks and Politics
Course Description

How webs of social relationships affect political behavior; applications to American politics, Comparative politics and international relations. Both online and offline social networks. Concepts, theory, and empirics. Prerequisite: 1101 or 1102. [3] (SBS)

PSCI3273W - Networks and Politics
Course Description

How webs of social relationships affect political behavior; applications to American politics, comparative politics and international relations. Both online and offline social networks. Concepts, theory, and empirics. Serves as repeat credit for 3273. Prerequisite: 1101 or 1102. [3] (SBS)

PSCI3274 - Advanced Readings in Middle East Politics
Course Description

Recent books on Middle East. Relevance of works to regional political, social, and economic problems. Prerequisite: 2230. [3] (P)

PSCI3275 - National Security
Course Description

How states ensure their national security. Origins of the security dilemma; the use of power, deterrence, coercion, engagement, and interstate cooperation in settling disputes. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI3333 - Law, Politics, and Justice in Times of Crisis
Course Description

Contemporary and classical theories of law, politics and justice: rights theories, gender, race and the law; law and democratic politics; political institutions. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (HCA)

PSCI3400 - Political Economy of Elections
Course Description

Microeconomic and game-theory analysis of political institutions and elections. Study of party and candidate positioning; efficiency of political competition; polarization; and information provision and processing. Prerequisite: ECON 3012 or PSCI 2259. [3] (SBS)

PSCI3401 - Political Economy of Institutions and Development
Course Description

Theoretical mathematical and empirical models; nations' prosperity or poverty. Institutions as factors for disparity in economic development. Familiarity with basic methods of regression analysis is expected. Serves as repeat credit for ECON 3893, section 01 offered Fall 2022. Prerequisite or corequisite: ECON 3012 or PSCI 2259. [3] (SBS)

PSCI3700W - Mass Media and American Politics
Course Description

Impact of evolving media environment on U.S. politics. Changes in media; influence on public opinion, elected officials, and policymaking. Not open to students who have completed 3893 section 01 offered fall 2019. [3] (SBS)

PSCI3701 - Political Biography and Political Leadership
Course Description

The profession of politics through the lens of political biographies. American and European political leaders, including civil rights and legislative leaders, mayors, and presidents. American political development. Offered on a graded basis only. Instructor approval required to enroll. [[3] (SBS)

PSCI3841 - Directed Study
Course Description

Participation in research projects under the direction of a faculty supervisor. Consent of both the faculty supervisor and the director of undergraduate studies is required. Open only to junior and senior majors. May be repeated for a total of 6 credits in 3841, 3842, 3851, and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [1-3] (No AXLE credit)

PSCI3842 - Directed Study
Course Description

Participation in research projects under the direction of a faculty supervisor. Consent of both the faculty supervisor and the director of undergraduate studies is required. Open only to junior and senior majors. May be repeated for a total of 6 credits in 3841, 3842, 3851, and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [1-3; maximum of 6 credits total for all semesters of PSCI 3841, 3842, 3851, and 3852] (No AXLE credit)

PSCI3851 - Independent Research
Course Description

Development of a research project by the individual student under direction of a faculty sponsor. Consent of both the faculty sponsor and the director of undergraduate studies is required. Normally open only to majors in political science. May be repeated for a total of 6 credits in 3841, 3842, 3851, and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [1-3; maximum of 6 credits total for all semesters of PSCI 3841, 3842, 3851, and 3852] (No AXLE credit)

PSCI3852 - Independent Research
Course Description

Development of a research project by the individual student under direction of a faculty sponsor. Consent of both the faculty sponsor and the director of undergraduate studies is required. Normally open only to majors in political science. May be repeated for a total of 6 credits in 3841, 3842, 3851, and 3852 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [1-3; maximum of 6 credits total for all semesters of PSCI 3841, 3842, 3851, and 3852] (No AXLE credit)

PSCI3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline gain experience with local, state, national, and international government offices or other politically related organizations. A thorough report and research paper are submitted at the end of the semester. Completion of 6 hours of political science, normally a 2.90 grade point average, and prior department approval of the student's plan are required. May be taken on a Pass/Fail basis only and must be taken concurrently with 3882 and/or 3883. These hours may not be included in the minimum hours required in the political science major. Corequisite: 3882 and/or 3883. [1-9] (No AXLE credit)

PSCI3881 - Internship Readings and Research
Course Description

Under faculty supervision, students from any discipline can gain experience in a variety of settings relevant to Political Science. Hours earned are based upon readings and/or research supervised by a faculty member. A minimum of 1 hour in background readings and research must be completed in PSCI 3881 concurrently with and regardless of the number of hours earned in PSCI 3880. A substantial research paper must be submitted at the end of the semester during which the internship training is completed. These hours may count in the minimum required for the major. Normally, a 3.0 grade point average, 6 hours of prior work in Political Science, and prior approval of a specific plan of work by the director of undergraduate studies are required. Offered on a graded basis only and must be taken concurrently with PSCI 3880. Corequisite: PSCI 3880. [1-6] (No AXLE credit)

PSCI3891 - Topics in Contemporary Politics
Course Description

Political, governmental, and policy issues. May be repeated for credit when topics vary. No more than three hours may be counted toward the major. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [1-3] (No AXLE credit)

PSCI3893 - Selected Topics in American Government
Course Description

Topics of special interest. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

PSCI3894 - Selected Topics in Comparative Politics
Course Description

Topics of special interest. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

PSCI3895 - Selected Topics in International Politics
Course Description

Topics of special interest. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

PSCI3896 - Selected Topics in Political Theory
Course Description

Topics of special interest. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

PSCI3897 - Selected Topics
Course Description

Topics of special interest. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. No more than a total of 6 credits may be earned for 3897 and 3898 combined. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

PSCI4000 - Honors Seminar
Course Description

Preparation and completion of an honors project. Project planning, social science writing, and preparation for thesis defense. [3] (No Axle credit)

PSCI4238 - Comparative Political Parties
Course Description

Political parties and their role in the democratic process of modern liberal western democracies, focusing on party systems and party organizations. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (SBS)

PSCI4257 - The Politics of Capitalism
Course Description

Commerce and capitalism in social and political life from the eighteenth century to the present. Questions of justice and equality, freedom, and democratic politics. Prerequisite or corequisite: 1100, 1101 1102, 1103, or 1150. [3] (HCA)

PSCI4277 - Future of Warfare
Course Description

Political, societal, and technological factors that could affect the future conduct of warfare. Insurgency and counterinsurgency. Military operations other than war. Prerequisite or corequisite: 1100, 1101 1102, 1103, or 1150. [3] (SBS)

PSCI4444 - Unity and American Democracy
Course Description

Special topics. Axle category may vary by department and topic. [3]

PSCI4998 - Senior Honors Research
Course Description

Open only to seniors in the departmental honors program. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

PSCI4999 - Senior Honors Research
Course Description

Open only to seniors in the departmental honors program. Prerequisite or corequisite: 1100, 1101, 1102, 1103, or 1150. [3] (No AXLE credit)

Portuguese

PORT1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

PORT1103 - Intensive Elementary Portuguese
Course Description

Accelerated introduction to reading, writing, speaking, and listening. Emphasis on practical usage. Intended for students with prior or current study of another Romance language. No credit for students who have earned credit for 1101, 1102, or a higher level Portuguese language course. [3] (INT)

PORT1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

PORT2203 - Intermediate Portuguese
Course Description

Review of Portuguese grammar with emphasis on conversation, composition, and reading of modern Portuguese literary texts. No credit for students who have earned credit for a higher level Portuguese language course. Prerequisite: 1103. [3] (INT)

PORT2205 - Portuguese and Global Health
Course Description

Speaking, reading, and writing; advanced grammar. Health in Brazil and Lusophone Africa, through literary texts, films, articles, and public health publications. Virtual language-learning partnerships with medical students in Lusophone Africa. Prerequisite: 2203. [3] (INT)

PORT2900 - Brazilian Civilization through English Language Material
Course Description

The cultural heritage of Brazil from its earliest days to the present. National identity, race relations, and Brazil's emergence as a major force in the Americas and beyond. Taught in English. Not open to students who have earned credit for PORT 1111 Section 01 without permission. Total credit for this course and PORT 1111 Section 01 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (P)

PORT2995 - Literatures and Cultures of Lusophone Africa
Course Description

Late-colonial and postcolonial literature, film, and popular culture. Works from Angola, Mozambique, Cabo Verde, Guinea-Bissau, and African migrant communities in Portugal. Imperialism, migration, national identity, and race. Taught in English. Not open to students who earned credit for 3892 section 01 offered fall 2019. [3] (P)

PORT3301 - Portuguese through the Arts
Course Description

Writing and presentation skills in Portuguese through encounters with the arts. Visual, performing, and literary arts from Brazil, Portugal, and Lusophone Africa. Prerequisite: 2203. [3] (INT)

PORT3302 - Brazilian Pop Culture
Course Description

Development of written and oral communication skills through the study of Brazilian popular culture. Movies, music, television, and magazines. Prerequisite: 2203. [3] (INT)

PORT3303 - Introduction to Luso-Brazilian Literature
Course Description

Critical readings and methods of literary analysis. Masterpieces from Portugal and Brazil from all genres in several periods. Conversation and writing. Prerequisite: 3301 or 3302. [3] (HCA)

PORT3850 - Independent Study
Course Description

A reading course, the content of which varies according to the needs of the individual student. Primarily designed to cover pertinent material not otherwise available to the student in the regular courses of the curriculum. [Variable credit: 1-3 hours, not to exceed 12 over a four-semester period] (No AXLE credit)

PORT3891 - Special Topics in Portuguese and Brazilian Literature or Civilization in English Translation
Course Description

Does not count toward a major or minor in Portuguese. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

PORT3892 - Special Topics in Portuguese Language, Literature, or Civilization
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3303. [3] (No AXLE credit)

PORT4350 - Portraits of Brazil: Culture, Society and the Arts
Course Description

Themes in Brazilian culture and society. Literature, theater, popular music, media, and key essays by Brazilian intellectuals. Taught in Portuguese. Prerequisite: 3301 or 3302. [3] (P)

PORT4420 - Brazilian Literature through the Nineteenth Century
Course Description

Main literary trends, principal writers and works of Brazilian literature, from colonial beginnings through the nineteenth century. Study of the works of Greg√≥rio de Matos, Gon√ßalves Dias, Alencar, Machado de Assis, and Euclides da Cunha. Prerequisite: 3303. [3] (HCA)

PORT4425 - Modern Brazilian Literature
Course Description

Brazilian literature from the Semana de Arte Moderna to the present. Modernist and neo-Modernist movements. Prerequisite: 3303. [3] (HCA)

Psychology (AS)

PSY1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

PSY1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

PSY1200 - General Psychology
Course Description

A survey of modern scientific psychology. Topics include development, perception, motivation, learning, thinking, remembering, emotion, intelligence, special aptitudes, and personality development. General applications to human behavior. The student must either analyze published research or be a subject in current research. Not open to students who have earned credit for 1111, sections 1, 2, or 3. Total credit hours for this course and 1111 (sections 1, 2, or 3) will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (SBS)

PSY2100 - Quantitative Methods
Course Description

Principles and methods for the statistical analysis of experiments, with emphasis on applications in psychology. Descriptive and inferential statistics. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY2150 - Principles of Experimental Design
Course Description

Theory and research methods in psychological science. Philosophy of science, ethical issues, experimental design, and data interpretation. Prerequisite: 2100 or PSY-PC 2110. [3] (SBS)

PSY3100 - Abnormal Psychology
Course Description

Mental and emotional disorders. Definitions of adequate human functioning processes that disrupt functioning. Methods of evaluation and treatment. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3110 - Social Psychology
Course Description

The influence of social conditions upon behavior in interpersonal and group relations. Perception, judgment, learning, and attitudes. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3120 - Cognitive Psychology
Course Description

Attention, pattern recognition, knowledge representation, language, reasoning, and human intelligence. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3270 - Computational Neuroscience
Course Description

Theoretical, mathematical, and simulation models of neurons, neural networks, or brain systems. Computational approaches to analyzing and understanding data from behavior, neurophysiology, electrophysiology, or brain imaging. Simulation methods for neural models. Course taught using Python. Recommended: NSC 2201.Prerequisite: either DS 1100/CS 1100, 1101, 1103, or 1104 (or a more advanced programming course); and either MATH 1200 or 1300 (or a more advanced calculus course). [3] (MNS)

PSY3560 - Sports Psychology
Course Description

Current views of performance enhancement and team building. Theories of personality, goal setting, and interpersonal dynamics. Careers in sports psychology. Prerequisite: 1200. [3] (No AXLE credit)

PSY3600 - Personality
Course Description

Major theories of personality development, methods of assessment, and results of research, with an emphasis on normal behavior. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3605 - Industrial and Organizational Psychology
Course Description

Scientific theories in cognitive, social, and personality psychology to improve work motivation and performance. Job analysis and assessment methods. Leadership, teamwork, and cross-cultural issues. Prerequisite: 1111 section 1, 2, or 3, or 1200; or a major in Cognitive Studies, Child Development, or Child Studies. [3] (SBS)

PSY3610 - Introduction to Clinical Psychology
Course Description

Historical foundations, professional ethics, principles of clinical assessment and therapy, and areas of specialization such as health psychology. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3615 - Emotion
Course Description

Definitions and functions of emotion. Emotion and health, emotion and psychopathology, individual differences, and emotional development. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3620 - Schizophrenia
Course Description

Neurological, psychological, cultural, and evolutionary perspectives. Genetics, epidemiology, symptomatology, sex differences, and affect. Prerequisite: 3100 and NSC 2201. [3] (SBS)

PSY3625 - Depression
Course Description

Psychological and biological perspectives on unipolar and bipolar affective disorders. Assessment and classification, epidemiology, genetics, family environment, and treatments. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3630 - Drugs and Behavior
Course Description

Drug effects on neural circuits, human physiology, individual psychology, and society. Prior to spring 2023, serves as repeat credit for students who have earned credit for NSC 3260. Serves as repeat credit for NSC 3630. Prerequisite: 1200 or NSC 2201. [3] (SBS)

PSY3635 - Health Psychology
Course Description

Neurophysiological, endocrine, and immune systems. Factors underlying health habits and lifestyles. Methods to enhance health behaviors and prevent illness. Stress management. Reciprocal interactions among behavior, thoughts, and physiology with resulting effects on physical and psychological health and illness. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3640 - Positive Psychology
Course Description

Optimal functioning in human psychology. Interdisciplinary approaches to well being, character strengths and virtues, positive emotions, and clinical implications. Not open to students who have earned credit for 1111, section 13. Total credit hours for this course and 1111, section 13, will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3700 - Movement
Course Description

Psychological, computational, and neural perspectives on the activities of looking, reaching, grasping, speaking, smiling or frowning, walking and running. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY3705 - Human Sexuality
Course Description

The physiological, psychological, and cultural bases of sexual behavior. History of sexuality, gender roles, sex in human relationships, diagnosis and treatment of sexual disorders and dysfunctions, cross-cultural perspectives, pornography, rape, AIDS, and homosexuality. [3] (P)

PSY3715 - Animal Behavior and Evolutionary Psychology
Course Description

Comparative and phylogenetic approach to the study of behavior, with special emphasis on sensory processes, instinctive behavior, the genetics of behavior, and ethology. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3730 - Learning and Memory
Course Description

Principles of learning and memory and their neural bases. Classical and operant conditioning; declarative and procedural memories; working memory and cognitive control. Strategies for optimizing learning in college; emotional and social influences; aging and diseases of the brain. Not open to students who have earned credit for 1111, section 8. Total credit hours for this course and 1111, section 8, will not exceed 3 hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. Prerequisite: 1111 section 1, 2, or 3, or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS).

PSY3750 - Perception
Course Description

Current theory and research in sensation and perception, including an analysis of philosophical and biological issues. Biological organisms' acquisition, processing, and use of information about objects and events in the environment. Vision, audition, taste, smell, and touch. Prerequisite: Either PSY 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY3755 - Behavioral Decision-making
Course Description

Affective, cognitive, and motivational processes involved in human judgment and decision-making. Accurate and inaccurate judgments. Optimal and suboptimal decisions. Offered on a graded basis only. Prerequisites: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY3760 - Mind and Brain
Course Description

Concepts of cognitive neuroscience. Relationship between the brain and perception, cognition, attention, memory, language, thought, emotion, social judgments, and consciousness. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY3765 - Social Cognition and Neuroscience
Course Description

Neural underpinnings of social perceptions, evaluations, and decisions. Face perception, attraction and reward processing, social co-operation and competition, decision-making, and moral judgments. Offered on a graded basis only. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3775 - Human Memory
Course Description

Single- and dual-process models of recognition memory; context and the role of time in memory search; interference versus decay in theories of forgetting. Theories of association, memory for sequences, and memory disorders. [3] (MNS)

PSY3780 - The Visual System
Course Description

Interdisciplinary approach to the ways that humans see and interpret their visual environment. Structure of the eye and brain, including optics. Physiology of individual cells and groups of cells. Machine vision and models of visual function, visual attention, and mechanisms of complex visual perception. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY3785 - Brain Damage and Cognition
Course Description

Effects of neurological impairment from stroke, injury, or disease on perception, speech, memory, judgment, and behavior. Relationship between brain systems and cognitive systems. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3810 - Spatial Cognition
Course Description

Cognitive and neural processes involved in spatial learning, memory, and navigation. Types and nature of spatial knowledge; path integration and wayfinding; gender and cultural differences in navigational skill; effects of technology (e.g., mapping applications); aging and diseases of the brain; comparative perspectives (humans vs. other mammals & insects). Serves as repeat credit for PSY 3810W or PSY 3891-01 in Fall 2017. Prerequisite: 1111 section 1, 2, or 3, or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3810W - Spatial Cognition
Course Description

Cognitive and neural processes involved in spatial learning, memory, and navigation. Types and nature of spatial knowledge; path integration and wayfinding; gender and cultural differences in navigational skill; effects of technology (e.g., mapping applications); aging and diseases of the brain; comparative perspectives (humans vs. other mammals & insects). Serves as repeat credit for PSY 3810. Prerequisite: 1111 section 1, 2, or 3, or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY3840 - Directed Study
Course Description

Participation in ongoing research projects under direction of a faculty sponsor. Consent of both the faculty sponsor and the director of undergraduate studies is required. Open only to juniors and seniors. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [1-3] (No AXLE credit)

PSY3850 - Independent Study
Course Description

Development of a project by the individual student under direction of a faculty sponsor. Consent of both the faculty sponsor and the director of undergraduate studies is required. Open only to juniors and seniors. May be repeated for credit more than once if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [1-3] (No AXLE credit)

PSY3880 - Internship Training
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private organizations, institutions and agencies. Work must be related to issues within the spectrum of psychological science, including, but not limited to, neuroscience, clinical psychology, applied psychology, human development, behavior and performance. Credit hours earned are based upon actual work performed at the internship site. A minimum of 3 credit hours in background reading and research must be completed in PSY 3881 concurrently with and regardless of the number of hours earned in PSY 3880. A substantial research paper or report must be submitted at the end of the semester during which the internship is completed. These credit hours may NOT count in the minimum required for the Psychology major or minor. Normally, a 3.0 grade point average, 6 hours of prior course work in Psychology, and prior approval of a specific plan of work by the Director of Undergraduate Studies in Psychology are required. Offered on a Pass/Fail basis only and must be taken concurrently with PSY 3881. Corequisite: PSY 3881 Variable credit. [1-9] No AXLE Credit.

PSY3881 - Internship Readings and Research
Course Description

Under faculty supervision, students from any discipline can gain experience in a broad range of public and private organizations, institutions and agencies. Work must be related to issues within the spectrum of psychological science, including, but not limited to, neuroscience, clinical psychology, applied psychology, human development, behavior and performance. Credit hours earned are based upon readings or research supervised by one or more faculty to lend some intellectual foundation to the internship experience. At least one faculty supervisor must be a member of the Psychology Department in the College of Arts and Science at Vanderbilt. A minimum of 3 credit hours in background readings and research must be completed in PSY 3881 concurrently with and regardless of the number of hours earned in PSY 3880. A substantial research paper or report must be submitted at the end of the semester during which the internship training is completed. These credit hours may not count in the minimum required for the Psychology major or minor. Normally a 3.0 grade point average, 6 hours of prior course work in Psychology and prior approval of a specific plan of work by the Director of Undergraduate Studies in Psychology are required. Offered on a graded basis only and must be taken concurrently with PSY 3880. Corequisite: PSY 3880. [3-6] (No AXLE credit)

PSY3890 - Special Topics in Perception
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3750. [3] (No AXLE credit)

PSY3891 - Special Topics in Cognitive Psychology
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3120. [3] (No AXLE credit)

PSY3892 - Special Topics in Neuroscience
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: NSC 2201. [3] (No AXLE credit)

PSY3893 - Special Topics in Clinical Psychology
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3100. [3] (No AXLE credit)

PSY3894 - Special Topics in Social Psychology
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 3110. [3] (No AXLE credit)

PSY3980 - Honors Seminar
Course Description

Individual readings, reports, and seminar discussions of research areas representative of psychological science at Vanderbilt. The ethical conduct of research, advanced research methods and design, and philosophy of science are representative content areas. Open only to departmental honors candidates. [3] (No AXLE credit)

PSY3981 - Honors Seminar
Course Description

Individual readings, reports, and seminar discussions of the basic areas of psychology. Selection of topics will provide some freedom to pursue individual interests. Open only to departmental honors candidates. Prerequisite: 1111 section 1, 2, or 3 or 1200; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (No AXLE credit)

PSY3990 - Teaching Psychological Science
Course Description

Taken concurrently with an undergraduate course-coordinator or course-assistant appointment. Responsibilities and challenges, teaching techniques, and student engagement. Student-centered learning and teaching. Culminates with each student preparing and delivering one classroom session. Instructor's permission required to register. [3] (SBS)

PSY3995 - Directed Study for Learning Assistants
Course Description

Participation as a Learning Assistant for a PSY course under direction of a PSY faculty member. Consent of both the course instructor and the director of undergraduate studies is required. Open only to juniors and seniors. May be repeated for credit. Offered on a graded basis only. Prerequisite: 1200. [1-3] (No AXLE credit)

PSY3996 - Pedagogy Seminar
Course Description

Theory and application of pedagogical techniques specific to assistant teaching of courses in Psychology. Learning and memory, teaching ethics, culture and equity in learning environments. Offered on a graded basis only. Prerequisite: 1200. [1] (No AXLE credit)

PSY3998 - Delivery of Psychological Services
Course Description

Scientific knowledge about human psychopathology and practical applications in a community setting. Community placement and classroom attention to service delivery, skills, ethics, and professional development. Prerequisite: 3100. [3] (SBS)

PSY4218 - Computational Cognitive Modeling
Course Description

Computational modeling of human perception and cognition. Model implementation, parameter estimation, and statistical model evaluation; developing and testing new models; stochastic processes, simulation, and Monte Carlo methods; high-performance computing. Recommended: prior (or concurrent) completion of PSY 3120, 3760, 3775, 3780, or NSC 3270. Prerequisite: one of DS 1100/CS 1100, CS 1101, 1103, or 1104. [3] (MNS)

PSY4219 - Scientific Computing for Psychological and Brain Science
Course Description

Computer programming, scientific computing methods, and high performance computing applied to psychological and brain sciences problems, such as experimental control, data analysis and visualization, image and signal processing, optimization, and simulation. Some prior coursework in psychology or neuroscience recommended. Prerequisite: DS 1100/CS 1100 or CS 1101 or 1104. [3] (MNS)

PSY4220 - Bayesian Modeling with Python
Course Description

Statistical and cognitive modeling. Models of memory, psychophysics, categorization, and decision-making. Probabilistic programming in Python. Bayesian parameter estimation and model comparison. Recommended: prior completion of one or more of 3120, 3755, 3760, 3775, or 3780. Prerequisite: one of 4218, CS 1101, 1103, 1104, or NSC 3270. [3] (MNS)

PSY4720 - Experimental Methods in Behavioral Neuroscience
Course Description

Experimental methods in behavioral neuroscience. Computer-based data acquisition and analysis, statistical reasoning, and manuscript preparation. Prerequisite: 1200 and NSC 2201. [3] (MNS)

PSY4730 - Laboratory in Experimental Psychology
Course Description

Experimental methods in psychological science. Evaluation of scientific literature, development of testable hypotheses, and computer-based experimentation including programming, data collection, and analysis. Prerequisite: 2150; and 2100 or PSY-PC 2110. [3] (MNS)

PSY4775 - Models of Human Memory
Course Description

Mathematical and computational models of the cognitive processes underlying human memory. Attribute-based models, instance theories, neural network models, retrieved-context models, executive function, and working memory models. Methods of fitting models to empirical data. Prerequisite: 3775, and one of CS 1101, 1103, or 1104. [3] (MNS)

PSY4998 - Honors Thesis
Course Description

Participation with a staff member in work leading toward the senior thesis. This work may consist of readings and reports or active participation in research and will culminate in an independent research report. Open only to departmental honors candidates. Prerequisite: 3980 or 3981. [3] (No AXLE credit)

PSY4999 - Honors Thesis
Course Description

Participation with a staff member in work leading toward the senior thesis. This work may consist of readings and reports or active participation in research and will culminate in an independent research report. Open only to departmental honors candidates. Prerequisite: 3980 or 3981. [3] (No AXLE credit)

Psychology-PC

PSY-PC1001 - Commons iSeminar
Course Description

Commons iSeminar, a 1-hour small seminar experience, open to first-year students. Students and faculty will collaboratively explore a specialized topic in depth in this university-wide seminar sponsored by The Ingram Commons. General Elective credit only. [1]

PSY-PC1115 - First-Year Seminar
Course Description

Topics of interest designed for first year students. Does not count in the writing requirement of the Liberal Education Core. [3]

PSY-PC1117 - First Year Writing Seminar
Course Description

Topics of interest for first year students. Courses are writing intensive and may be applied to the Peabody Liberal Education Core writing requirement. Repeatable with change of topic. [3]

PSY-PC1205 - Minds, Brains, Contexts, and Cultures
Course Description

An introduction to the cognitive studies major. Readings, lectures, and discussions are focused on thinking and understanding, especially as related to the brain, immediate context, and culture. These topics are considered from a variety of perspectives, including those taken from philosophy; literature; cognitive, social, and developmental psychology; sociology; psychiatry; and cultural anthropology. [3]

PSY-PC1207 - Minds, Brains, Contexts, and Cultures
Course Description

An introduction to the cognitive studies major. Readings, lectures, and discussions are focused on thinking and understanding, especially as related to the brain, immediate context, and culture. These topics are considered from a variety of perspectives, including those taken from philosophy; literature; cognitive, social, and developmental psychology; sociology, psychiatry; and cultural anthropology. May be applied toward the Peabody Liberal Education Core writing requirement. [3]

PSY-PC1250 - Developmental Psychology
Course Description

An overview of human development emphasizing the period from conception through adolescence. Course content includes research methods as well as in-depth coverage of selected topics in cognitive, social, emotional, and physical development. [3]

PSY-PC2110 - Introduction to Statistical Analysis
Course Description

Introductory course emphasizes selection, application, and interpretation of measures of relative frequency, location, dispersion, and association. Approaches to statistical inferences are emphasized. Prerequisite: proficiency in high school algebra. [3]

PSY-PC2115 - Advanced Introduction to Statistics
Course Description

This calculus-based introductory statistics course emphasizes concepts and techniques in descriptive and inferential statistics. The orientation and data examples are taken from the social/behavioral sciences. Emphasis is placed on statistical theory, analysis, and interpretation of data, from both exploratory and confirmatory perspectives. Prerequisites: Math 1300 and 1301 or equivalent. [3]

PSY-PC2120 - Statistical Analysis
Course Description

Second course in statistics for undergraduates. Multifactor analysis of variance designs (including repeated measures), and goodness of fit and contingency analyses. Prerequisite: PSY-PC 2110 or PSY 2100 or ECON 1500 or MATH 2810 or a score of 5 on the AP Statistics exam. [3]

PSY-PC2170 - Experimental Research Methods in Child Development
Course Description

Focuses on how experimental methods are used to understand processes of child development. Through readings, class discussion, writing, and research experiences, the class considers excellent examples of classic and contemporary experimental studies of child development. Prerequisite: PSY-PC 1205/1207 or PSY-PC 1250 or PSY 1200 and PSY 2100 or PSY-PC 2110 or ECON 1500 or MATH 2810 or a score of 5 on the AP Statistics Exam. [3]

PSY-PC2200 - Psychology of Thinking
Course Description

An in-depth exploration of theories and basic research concerning how young adults (i.e., college students) think, reason, and solve problems. Major topics include memory, categorization, reasoning, decision making, problem solving, and expertise. Prerequisite: PSY-PC 1205/1207, or 2250 or PSY 1200. [3]

PSY-PC2230 - Introduction to Educational Neuroscience
Course Description

Educational neuroscience (ed neuro) is an emerging scientific field that investigates how the brain enables learning. Ed neuro applies the methods of cognitive neuroscience to questions such as what are the brain systems that allow us to read and do math? How do those systems relate to general systems such as attention and memory? This course will provide an introduction to these topics and more, exploring the basics of how the brain is structured, to how we can use neuroimaging methods to understanding the brain structures and processes that support learning. At the end of this course you will have a basic understanding of cognitive neuroscience methods and how they relate to educationally relevant cognitive domains. [3]

PSY-PC2250 - Cognitive Aspects of Human Development
Course Description

Introduction to research and theory in cognitive development. Emphasis on infancy and on early and middle childhood. Topics may include development of language, memory, sensation and perception, problem solving, concepts and theories, effects of media, sociocultural support for development, developmental disorders, and logical mathematical reasoning. Prerequisite: PSY-PC 1205/1207 or 1250 or PSY 1200. [3]

PSY-PC2260 - Seminar on Developmental Disabilities
Course Description

Before delving into the many controversies in the disability field, this course first addresses such fundamentals as different models of intellectual and developmental disabilities (IDD's; e.g., medical and social models, neurodiversity), the history of the field, and the strengths and challenges of people with specific etiologies of IDD (e.g., environmental, autism spectrum disorder, genetic syndromes). The seminar then focuses on a range of pressing concerns for people with IDD (e.g., disparities in healthcare, advances in prenatal genetic testing, needs of families, and inequities in the penal system). In doing so, the seminar intersects with divergent perspectives from medicine, genetics, law, social justice, psychology, education, public opinion and social policies. [3]

PSY-PC2270 - Seminar on Human Diversity
Course Description

The seminar begins with key concepts related to human diversity: cultural and structural competence, cultural humility, stigma, prejudice, implicit bias, microaggressions, colorblindness, privilege, race, ethnicity, the biology of skin color, intersectionality, and co-synthesis. With these concepts as a backdrop, the course then focuses on different "isms" or "phobias," e.g., racism, sexism, ableism, ageism, nationalism, antisemitism, homophobia, transphobia, islamophobia. An emphasis is placed on how these "ism" and "phobias" relate to: (1) health and mental health care disparities; (2) incarceration disparities, and (3) student experiences at Vanderbilt. Students also learn tools that facilitate their self-awareness of, and life-long learning about, human diversity. [3]

PSY-PC2300 - Social and Emotional Context of Cognition
Course Description

An exploration of such social factors as the individual's values, beliefs, and emotions and their contributions to the basic cognitive processes involved in social perception, complex decision making, and problem solving. Topics include the social construction of perceived reality, attitude formation and change, heuristics and biases in social inference, and the role of emotion in coping and problem solving. [3]

PSY-PC2400 - Social and Personality Development
Course Description

An overview of basic concepts and current research in social and personality development. Specific topics include research methods, development of self, social cognition, achievement motivation, prosocial behavior, moral development, aggression, gender role development, family and cultural influences. Prerequisite: PSY-PC 1205/1207 or 1250 or PSY 1200. [3]

PSY-PC2500 - Infancy
Course Description

The behavior and physiological development of infants reflect a complex interaction between evolutionary history and genetics, prenatal environmental influences, and early postnatal experience. An overview of each of these topics is provided through classroom discussions and reading assignments focusing on recent empirical studies and major theoretical issues. Prerequisite: PSY-PC 1250. [3]

PSY-PC2550 - Adolescent Development
Course Description

Examines theory, research, and other literature pertinent to the development and education of adolescents (ages 12-19). Specific topics include: cognitive and social development; issues in identity, intimacy, autonomy, and sexuality; family-adolescent relationships; peer relationships; school achievement and organization; choices and decision making related to work. [3]

PSY-PC2560 - Theories of Developmental Psychology in Practice
Course Description

We will study the grand theories of Developmental Psychology in-depth to provide a broad conceptual foundation for using Developmental Psychology in applied careers. Students will also gain familiarity with current Developmental Psychology concepts relevant to their intended professional practices. Through disciplined collaborative exchanges, students will learn about research advances and theoretical perspectives that are relevant to their fields, but not yet well known by practitioners. The term project assignments are designed to provide students the scholarly skills to not only keep up with current research in Developmental Psychology during their careers, but to seek out new domains of typical development research to learn from so that they can be leaders in their fields. For the final paper, students will write an original scholarly article to engage and inform practitioners. This closely supervised paper will provide students with individual practice using portable scholarly strategies to identify key developmental findings and communicate their importance to other practitioners. [3]

PSY-PC2600 - Educational Psychology
Course Description

Examines the applications of psychological theories and research to teaching and learning settings. Focuses on cognitive development, problem solving and critical thinking, learning theories, motivation, social contexts, individual differences, classroom issues, and evaluation issues. Prerequisite: PSY-PC 1205/1207 or 1250 or PSY 1200. [3]

PSY-PC2700 - Abnormal Child Psychology
Course Description

This course will cover etiology, assessment, and treatment of psychological disorders (e.g., depression, anxiety, disruptive behavior disorders, autism spectrum disorders) emerging in childhood and adolescence. We will examine the development and treatment of psychopathology from an integrative perspective, including biological, cognitive, behavioral, cultural and environmental perspectives, and explore current issues and challenges in the field Prerequisites: One course from PSY-PC 1205, 1207, 1250, or PSY 1200. [3]

PSY-PC3130 - Introduction to Formal Linguistics
Course Description

This course is a general introduction to formal linguistics, the scientific study of human language. We will focus on the major core subfields of linguistics: morphology, phonetics, phonology, syntax, and semantics. This course also touches on questions of sociolinguistics, language variation, and language change. [3]

PSY-PC3140 - Psychology of Language
Course Description

This course covers the basics of the psychology of language, understanding the cognitive processes that underlie language production, language comprehension, and the use of language in society. Through understanding these processes, students will learn ways in which they can improve their own communication skills. [3]

PSY-PC3150 - Language Development
Course Description

An overview of language development with an emphasis on relevant research in linguistics, developmental psychology, and comparative psychology. Specific topics covered include research methods, speech perception, conversational competence, word learning, pragmatic development, and syntactic competence. The course is intended for students beyond the first year. [3]

PSY-PC3160 - Bilingualism and Second Language Learning
Course Description

Learn the psychological and brain processes that underlie bilingualism and second language acquisition. Explore state of the art techniques in psychology such as brain imaging and eye-tracking as applied to multi-lingual speakers. Learn about bilingual language processing and learning. Develop the ability to critically evaluate the literature. [3]

PSY-PC3170 - Cognitive Science of Reading
Course Description

Learn the relation of speech to reading in different writing systems. Understand the nature of visual word recognition. Explore how reading develops and is affected by dyslexia through experiments and formal modals. Investigate the neural substrate of reading development and disability. Examine the causes of reading failure and how science can inform practice. Develop the ability to critically evaluate the literature and use it to apply to education. [3]

PSY-PC3180 - How We Talk
Course Description

The course will examine how language is used in conversational settings. The course will focus on empirical studies of the psychology of language and will examine the cognitive, social, and contextual processes that guide every-day language use. Prerequisite: PSY-PC 3130 or 3140. [3]

PSY-PC3190 - Language and the Brain
Course Description

Learn brain anatomy underlying language. Understand nonscientific methods used to study language such as neuroimaging and Lesion approaches. Explore brain basis of the lexical processing of nouns, verbs and morphology, and the comprehension of sentences. Investigate the neural substrate and behavioral manifestation of language disorders such as aphasia. Examine the cortical machinery of reading and writing, and their disorders such as dyslexia and dysgraphia. Develop the ability to critically evaluate the literature. [3]

PSY-PC3200 - Introduction to Clinical Psychology
Course Description

This course provides an overview of the science and practice of clinical psychology, with an emphasis on child and adolescent clinical psychology. Clinical research, psychological assessment, psychotherapy, and related issues will be discussed in class. Students examine the techniques used by clinical psychologists to assess and treat psychopathology, and research investigating the efficacy of these techniques. Students will examine the science of clinical psychology by reviewing research from scientific journals on the effects of a specific type of psychotherapy for a specific psychological disorder. Previous courses in abnormal psychology, abnormal child psychology, and psychological research methods/statistics are highly recommended. [3]

PSY-PC3210 - Hospitalized Child
Course Description

This course is designed for individuals who want to know more about the psychosocial needs of children, adolescents and families in health care settings and situations. Some of the specific topics covered in this course include: impact of illness and hospitalization on the family; social and developmental issues and how they interface with health care; normative development within the hospital; psychosocial roles of various healthcare team members; preparation of patients and families for health care experiences; utilizing play for therapeutic purposes; spirituality and its impact on the child and family's health care experience; the child who is dying; pediatric palliative and hospice care; an introduction to the field of child life; and an introduction to the field of pediatric / family advanced practice nursing. [3]

PSY-PC3220 - Pediatric Research Design
Course Description

This course is designed for individuals interested in conducting pediatric healthcare research with children and their families. The class explores current inquiry paradigms, research processes and procedures, methodology and elements of design, and evidence-based techniques for supporting children and families during healthcare research encounters and improving the quality and efficacy of medical and psychosocial care and research with/for children. [3]

PSY-PC3230 - Play-Based Intervention
Course Description

This course is designed for individuals interested in using play-based techniques to meet the psychosocial needs of children and families experiencing stress. The concept of "play" is explored from a variety of developmental, psychological, professional, and educational standpoints using seminal texts from leading theorists. Applications of play to promote coping and development for children and families experiencing stress, illness, or discord are considered. Some of the specific topics covered in this course include historical and contemporary play theories, evidence-based uses of play for assessment and intervention, and the implications of play for children's rights and welfare. [3]

PSY-PC3650 - Advanced Topical Seminar
Course Description

An advanced seminar intended for juniors and seniors in which a particular topic within cognitive studies is considered in depth. Topics vary. May be repeated for credit with change of topic. Prerequisite: PSY 1200 or PSY 1250 or PSY-PC 1205 or PSY-PC 1207 or PSY-PC 1250. This course is intended for students beyond the first year unless otherwise specified in the class schedule note. [3]

PSY-PC3722 - Psychometric Methods
Course Description

Covers the fundamental concepts of psychological measurement and testing, examines a sample of most important psychometric instruments in current use, provides observation of testing, and considers knowledge essential to making wise use of testing information in research and applied child development settings. Prerequisites: PSY-PC 1250 or 1205/1207 or PSY 1200 and PSY-PC 2110 or PSY 2100 or ECON 1500 or MATH 2810 or a 5 on the AP Statistics Exam. [3]

PSY-PC3724 - Psychometrics
Course Description

The basic objectives of this course are for students to learn the fundamental concepts, methods, and principles of educational and psychological measurement. Particular attention will be devoted to reliability and validity issues underlying psychometric theory from original sources, and how psychometric theory relates to the assessment of individual differences or human psychological diversity more generally. Students should choose between PSY-PC 3722 and this course inasmuch as credit for both is not allowed. This course is more demanding in that students will be reading original sources; it is especially relevant to students seeking advanced training in the social sciences or research careers. Prerequisite: PSY-PC 2110 or PSY 2100 and PSY-PC 2120. [3]

PSY-PC3727 - Modern Robust Statistical Methods
Course Description

Covers modern statistical methods designed to handle violations of statistical assumptions that can compromise classic parametric procedures. More specifically, the student will learn about the classic assumptions of independence, normality, and equal variances that underlie many standard procedures, and become familiar with modern methods that perform vastly better than the classic procedures when assumptions are violated, yet offer few performance penalties under many realistic situations where assumptions are violated. Prerequisite: PSY-PC 2110 or PSY 2100 (or equivalent), and PSY-PC 2120. [3]

PSY-PC3730 - Applied Latent Class and Mixture Modeling
Course Description

Often social science and educational researchers hypothesize that there are unobserved groups or latent classes of persons who show different behavioral patterns, or different patterns of change over time. This course covers mixture models - a statistical approach for assessing the number and size of classes, as well as class homogeneity or heterogeneity. Longitudinal mixture models are also used to allow classes to transition between states at different rates and/or to have different functional forms of change. Prerequisite: PSY-PC 2110 or PSY 2100 (or equivalent), and PSY-PC 2120. [3]

PSY-PC3732 - Latent Growth Curve Modeling
Course Description

The analysis of longitudinal data (repeated measurements on the same people over time) is central for evaluating many theories in social science and educational research. This applied course will focus on one flexible and powerful approach for analyzing within individual change over time, and between individual differences in change: the latent growth curve model. Emphasis will be placed on applications to real data, interpretation of results, and attaining a solid understanding of the statistical model. Prerequisite: PSY-PC 2110 or PSY 2100 (or equivalent), and PSY-PC 2120 [3]

PSY-PC3735 - Correlation & Regression
Course Description

Covers modern correlation and regression techniques, including linear regression, multiple regression, polynomial regression, interaction effects, univariate and multivariate outlier detection, data transformation algorithms, handling of missing data, nonlinear regression, logistic regression, Poisson regression, variable selection procedures, and regression diagnostics and graphics. Prerequisite: PSY-PC 2110 or PSY 2100 (or equivalent), and PSY-PC 2120. [3]

PSY-PC3737 - Structural Equation Modeling
Course Description

This course introduces the basic principles of path analysis, confirmatory factor analysis, and latent variable structural modeling, which constitutes a powerful set of statistical tools for examining correlational, observational, and even experimental data in the social sciences. Computer techniques for conducting these analyses will also be taught: the LISREL program in particular, but AMOS will also be introduced. [3]

PSY-PC3738 - Introduction to Item Response Theory
Course Description

Students are introduced to the basic concepts of educational and psychological measurement, classical test theory (CTT), and item response theory (IRT). These concepts will be taught with practice by illustrating the construction of tests. Prerequisite: PSY-PC 2110 or PSY 2100 and PSY-PC 3722. [3]

PSY-PC3743 - Factor Analysis
Course Description

This course covers primarily Exploratory Factor Analysis (EFA), which is extensively used in psychology, education, medicine, and management to investigate the underlying dimensionality of unobserved constructs (e.g., intelligence, psychopathology). The theory behind factor analysis is covered alongside hands-on application to data, exposure to uses of factor analysis in the applied literature, and instruction in popular EFA software. Key topics include model specification, fit and evaluation, rotation methods, questionnaire development, sample size and power issues, and extensions to confirmatory factor models. Prerequisite: PSY-PC 2110 or PSY 2100 (or equivalent), and PSY-PC 2120. [3]

PSY-PC3746 - Multivariate Statistics
Course Description

This course covers several classical multivariate statistical topics: principal component analysis, rotation, canonical correlations, multidimensional scaling, correspondence analysis, hierarchical clustering. Matrix algebra and basics about multivariate data will be taught at the beginning. The course has both theoretical and applied components. R will be used as the primary computing tool. Prerequisite: PSY-PC 2110 or PSY 2100 (or equivalent), and PSY-PC 2120. [3]

PSY-PC3749 - Applied Nonparametric Statistics
Course Description

This course covers nonparametric statistical methods useful when the assumptions of ordinary parametric statistics are not met, and for developing custom statistical techniques useful when other methods do not exist. Coverage is given to distribution-free procedures, sign tests, contingency tables, median tests, chi-square and other goodness-of-fit tests, rank correlations, randomness tests, ordinal regression, Monte Carlo methods, resampling methods (bootstrap and jackknife), tests of independence, 1-sample, 2-sample, and k-sample methods, permutation tests, function smoothing, and splines. Emphasis is placed on underlying theory, application to data, and software. Prerequisite: PSY-PC 2110 or PSY 2100 (or equivalent), and PSY-PC 2120. [3]

PSY-PC3751 - Exploratory Data Analysis
Course Description

Exploratory Data Analysis (EDA) is a modern statistical paradigm developed by John Turkey in the 1970's. EDA emphasizes fitting mathematical models to data as preliminary to the traditional hypothesis testing approach used in confirmatory analyses. Hallmarks of EDA include graphical methods, residual analysis, robust/resistant statistical methods, and data re-expression/transformation. But EDA is actually a whole philosophy of data analysis, and includes treatment of ethics and propriety in research. In this class we study EDA, as it has developed over the past four decades. We also do a great deal of EDA. An "EDA Portfolio" is developed by each student of different data analysis and graphical analysis projects. Included within the course is treatment of "big data" and data mining approaches, and also discussion of the current "replication crisis" and its emphasis on Questionable Research Practices (QRP's); EDA provides a certain type of prescriptive treatment of QRP's. Prerequisites: PSY-PC 2110 or PSY-PC 2120 or PSY-PC 3735 [3]

PSY-PC3850 - Independent Study
Course Description

Development of an independent study project by the individual student under the direction of a faculty sponsor. Intended primarily for juniors and seniors. Consent of both the faculty sponsor and the director of undergraduate studies is required. May be repeated for credit. [1-3]

PSY-PC3860 - Directed Research
Course Description

Participation in an empirical research project under the direction of a faculty sponsor. Consent of both the faculty sponsor and the director of undergraduate studies is required. May be repeated for credit. [1-3]

PSY-PC3870 - Field Work in Psychology for Undergraduates
Course Description

Offered to provide field experience appropriate to the student's interests. Open only to students majoring in child development, child studies, or cognitive studies. May be repeated. Consent of instructor required. [1-3]

PSY-PC3890 - Special Topics in Psychology
Course Description

Advanced exploration of a psychological orientation to current issues. May be repeated with change of topic. [3]

PSY-PC3980 - Honors Seminar
Course Description

Open only to Junior level students in the Psychology and Human Development Department honors program. [1-3]

PSY-PC3981 - Honors Seminar
Course Description

Open only to Junior level students in the Psychology and Human Development Department honors program. [1-3]

PSY-PC4998 - Honors Thesis
Course Description

Open only to Senior level students in the Psychology and Human Development Department honors program. [3]

PSY-PC4999 - Honor Thesis
Course Description

Open only to Senior level students in the Psychology and Human Development Department honors program. [3]

Public Policy Studies

PPS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

PPS2200 - Social Contexts of Public Policy
Course Description

Sociological underpinnings and aims. Theoretical and empirical works in sociology, anthropology, political science, and economics. Public policy outcomes and their relation to broader social structures, goals, and values. [3] (SBS)

PPS2250 - History and Ethics of Public Policy
Course Description

U.S. domestic and international policy-making. Domestic and comparative history; ethics frameworks relevant to public policy. [3] (SBS)

PPS3100 - Cities in the 21st Century
Course Description

Local policy and politics. Education, crime, health, finance, development, and transportation. Urban government and management. No credit for students who have earned credit for 3890-01 offered fall 2015, fall 2016, fall 2017, or fall 2018. [3] (SBS)

PPS3150 - Public Finance
Course Description

State and local government finance. Revenue sources including taxation, debt, and fees. Financing and budgeting tools. The politics of financial decision making for state and local governments. No credit for students who have earned credit for 3890-01 offered spring 2017 or spring 2018. [3] (SBS)

PPS3160 - Public Advocacy
Course Description

Development of policy research and discourse skills. Framing issues, telling stories, and choosing and presenting facts in support of a policy position. Navigating policy bureaucracy. Serves as repeat credit for PPS 3890, section 02 in Spring 2019. [3] (SBS)

PPS3200 - Research Methods for Public Policy Analysis
Course Description

Surveys in public policy analysis. Types, design, modes of implementation, sampling strategies, and data collection. Data management, cleaning, and analysis. [3] (SBS)

PPS3250 - Advanced Quantitative Methods for Public Policy
Course Description

Causal inference, the empirical toolkit for public policy analysis. Potential outcomes framework, multivariate regression, matching estimators, randomized controlled trials, instrumental variables, difference-in-differences, and regression discontinuity. [3] (SBS)

PPS3850 - Independent Research in Public Policy
Course Description

Normally only open to majors in Public Policy Studies. May be repeated for a total of 6 credit hours, but students may only earn up to 3 credits per semester of enrollment. [1-3] (No AXLE credit)

PPS3890 - Special Topics
Course Description

Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

PPS4960 - Senior Seminar on Research in Public Policy
Course Description

Supervised research project in policy area incorporating methodologies and analytical insights from more than one discipline. Offered on a graded basis only. [3] (SBS)

PPS4980 - Senior Honors Seminar
Course Description

Senior honors thesis development. [3] (No AXLE credit)

PPS4981 - Senior Honors Seminar
Course Description

Senior honors thesis development. [3] (No AXLE credit)

PPS4999 - Senior Honors Thesis
Course Description

Supervised readings and independent research for honors thesis. Open to seniors in the PPS honors program. [3] (No AXLE credit)

Religious Studies

RLST1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

RLST1010 - Encountering Religious Diversity
Course Description

Essential beliefs and practices of the world's major religious traditions. Hinduism, Buddhism, Judaism, Christianity, and Islam. Contemporary scholarship and perspectives on religious encounters from each of these traditions. [3] (HCA)

RLST1100 - Black Religion in America
Course Description

Colonial period to the present. Historical and thematic survey of the religious innovations and expressions of African-descended people in the United States. Role of religion in Black enslavement, politics, culture, and identity. Institutional and non-institutional religiosity. Christianity, Islam, conjure, music, and pop culture. [3] (US)

RLST1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

RLST1190W - Introduction to Southern Religion and Culture
Course Description

An exploration of the histories of evangelical and non-evangelical expressions in Southern religious culture from the colonial period to the present. The evangelical thrust of Southern culture, with some attention to Catholicism, Judaism, and other religious modes considered outside the mainstream of that culture. [3] (SBS)

RLST1200 - Introduction to Judaism
Course Description

Comprehensive historical overview of Judaism as a religion and a culture. The main ideas and institutions of Judaism, the centrality of the Hebrew Bible and the meaning of interpretation, thinkers, and movements in Jewish civilization, from rabbinic Judaism, medieval philosophy, mysticism, to modern thought, Zionism, and the foundation of the State of Israel. Recent Jewish self-representation in art. [3] (HCA)

RLST1208 - Themes in the Hebrew Bible
Course Description

A thematic introduction to the Hebrew Scripture/Old Testament. Selected themes-such as creation, revelation, covenant, law, suffering, messianic expectation - are traced through the diverse parts of the Bible (Pentateuch, Prophetic Writings, and Wisdom Literature) as well as in early Jewish texts. The comparison of the various expressions of these themes shows both the distinctiveness of each document and the continuity of the Biblical faith through the centuries. [3] (HCA)

RLST1309 - Themes in the New Testament
Course Description

A comparative study of New Testament documents following central themes - such as salvation; evil and sin; the roles of Christ, God, and the Spirit; discipleship; the church; sacred history. The distinctive teaching of each New Testament document as related to a concrete historical setting. Comparison with similar themes in Jewish and Hellenistic texts of that period. [3] (HCA)

RLST1330W - The Gnostic Gospels
Course Description

Gnostic writings of the 2nd-4th centuries; relationship to other early Christian writings; modern views of Gnosticism. [3] (HCA)

RLST1500 - Introduction to Islam
Course Description

An historical overview of the different religious traditions in Islam, their basis in the Qur'an and life of the Prophet, their proliferation in the medieval period, and their response to the challenge of modernity. Topics include sunni and shi'i Islam, evolution of law and theology, sufism and political philosophy. Islam in Africa, India, Spain, and southeast Asia as well as the Middle East. [3] (HCA)

RLST1637 - Religions of Tibet and the Himalaya
Course Description

Sixth century CE to the present. Religious ideas and practices. Myth, cosmology, doctrine, pilgrimage, and ritual. Adaptation of religious tradition to changing historical and cultural contexts. Encounters among Tibetan Buddhism, B√∂n, Catholicism, and modernity. [3] (INT)

RLST1700 - Religions in China
Course Description

Major religious traditions of China. Taoism, Buddhism, Confucianism, state-sponsored religious systems, and popular religion. Thought and practice from ancient times to the present. [3] (INT)

RLST1710 - Religions of Japan
Course Description

Early myths to present-day practices. Buddhism, Shinto, Shugendo, Christianity, and new religious movements. Cosmology, ritual, death, and modernity. Thematic explorations through film. [3] (INT)

RLST1820 - Religion, Sexuality, Power
Course Description

Historical, cultural, social scientific, and philosophical theories of how religious and political ideas and institutions are related to and dependent upon assumptions and ideologies of sex, gender, and race. Politics and public discourse on sex and religion. [3] (SBS)

RLST2134 - Asian and Asian-American Religions in the United States
Course Description

Practices and transformations of Asian religions in the United States by Asian immigrants and their children. Race, gender, sexuality, politics, nationalism, and media. [3] (HCA)

RLST2210W - Constructions of Jewish Identity in the Modern World
Course Description

How Jewish thinkers at the end of the nineteenth and early twentieth centuries addressed the question of individual and collective identity. Cultural, political, and religious definitions of modern Jewish identity, the role and the reinvention of national myths; the "Jewry of muscles," the "New Hebrews," the Zionist myth narratives in Zionism. [3] (HCA)

RLST2220 - Jewish Ethics
Course Description

A study of the logic and basic values that, in the Jewish tradition, guide thinking about moral problems. Examination of family and social ethical issues found in Talmud and other Jewish classical texts. Basic religious views of modern Jewish thinkers and their relation to contemporary Jewish life. Offered alternately with 1200. [3] (HCA)

RLST2229W - Contested Ground: Sacred Sites Across the Ancient World
Course Description

Sacred places and structures from the Paleolithic to the medieval period. Comparisons of religious sites worldwide. Cultural heritage and the historical and contemporary politics of ancient religious sites. [3] (P)

RLST2234 - Women in Judaism
Course Description

Judaism and feminism. Women in the Hebrew Bible, Jewish law, natural philosophy, and history. Case studies in Jewish medieval and modern contexts; problems of assimilation and cultural specificity in modern society. [3] (INT)

RLST2250W - History of the Bible
Course Description

Jewish and Christian Bibles from the formation of earliest bibles to the present. Major forms of the Bible, major interpretive approaches, and impact on politics and culture. [3] (HCA)

RLST2310 - Interpreting the Gospels
Course Description

The Synoptic Gospels through history and culture. Focus on either Matthew, Mark, or Luke; a survey of the interpretations of the Gospel from its original historical context, through the history of the church, and more recently in Catholic and Protestant churches after the Holocaust, in African American churches, and in feminist circles. [3] (HCA)

RLST2315 - Introduction to Christian Ideas
Course Description

Ancient, modern and contemporary debates in theology. Ideas of God, Jesus, Spirit, salvation, evil, and liberation. Key questions of science, belief, theism, race, gender, and colonial impact of Christian ideas. St. Paul, Augustine, Calvin, Tillich, Gutierrez, Cone, Daly, and Althaus-Reid. [3] (HCA)

RLST2318 - Intersex in Christian Traditions: Perspectives from Science, Law, Culture, and Theology
Course Description

Lived experiences of intersex people; issues encountered due to binary understanding of sex/gender in science, law, culture, and Christian theology and liturgy. Sex/gender as a spectrum. Offered on a graded basis only. [3] (HCA)

RLST2461 - Islam in Africa
Course Description

Social and cultural development of Islam across Africa from the eighth century to the present, as illuminated by historical, ethnographic, and literary sources. Interplay between Muslims and outside religious groups, jihads in pre-colonial Africa, and Islam during European colonization. Attention to Sub-Saharan Africa. [3] (INT)

RLST2471 - Religion in Africa
Course Description

Indigenous religious forms from pre-colonial Africa to the present. Creation myths, notions about gods and spirits, ritual, magic, witchcraft, art, shamanism, and ancestry. Interplay of indigenous religions with Islam and Christianity. [3] (INT)

RLST2472 - Religion, Ecology, and Power in Africa
Course Description

The interrelationship between religion and ecology in Africa; the ways power relations in pre-colonial Africa through the present have determined human-Earth relations. Divine origin and development of the Earth and its peoples; influence on African social structure, ethnically-based occupations, and stewardship over the environment. [3] (INT)

RLST2644 - Buddhist Traditions
Course Description

Historical and thematic survey of foundational, Mahayana, and esoteric Buddhist traditions. Mythology, doctrine, meditation, devotional practices, and institutions. Contemporary case studies from Asia and North America. [3] (INT)

RLST2664 - Foundations of Hindu Traditions
Course Description

Hindu cosmology and the ritual structure of sacrifice. The effect of the law of cause and effect (karma) on the moral order of the universe (dharma). The emergence of bhakti devotion to key gods and goddesses. The escape from the cycle of lives through yoga, introspection, and devotion. Pilgrimage mapping and the sacred geography of ancient and modern India. Classical mythology of the Vedas, Epics, and Puranas. [3] (INT)

RLST2811 - Natural Science and the Religious Life
Course Description

How scientific discoveries and religious teachings are related. Descriptions of the physical universe from Aristotle through Albert Einstein are compared to contemporaneous definitions of the moral life by religious thinkers such as Thomas Aquinas, Martin Luther, Immanuel Kant, and Martin Buber. [3] (P)

RLST2881 - Myth and History in Religious Biography
Course Description

Religious biography and hagiography as distinct literary genres. Hero mythology and narrative patterning. Ways religions construct unique biographical images by combining the historical life with religious belief. Examples from lives of Jesus, Buddha, Muhammad, Luther, Caitanya, Shinran, and Mama Lola. Interpretive strategies include hermeneutic theory, modes of history, structuralism, and feminism; additional theoretical perspectives on translation, orality, and reader response criticism. [3] (HCA)

RLST2940 - Great Books of Literature and Religion
Course Description

"Great Books" of the Western intellectual tradition, tracing Greco-Roman and Judeo-Christian literature and culture from their origins to synthesis in the medieval period. [3] (HCA)

RLST3007 - Religion Culture and Society
Course Description

Relationships between cultural, political, and social dynamics and religion. How religions and spiritual practices shape cultures and are changed by them. Contexts and issues that arise from the religious and spiritual dimensions of human life. [3] (HCA)

RLST3010 - Mindfulness, Religion, and Healing
Course Description

Histories of contemporary mindfulness practices; their origins in both Buddhist and U.S liberal religious traditions. Current uses in medicine, religion, and other spheres of society. Secularization, cultural appropriation, and social consciousness/amnesia. Not open to students who completed RLST 3890-03 offered spring 2022. [3] (US)

RLST3079 - The Sacred and the Secular
Course Description

Ethnographies of ritual and religious life. Politics of secularism and religious revival. Issues in anthropology, literature, and philosophy. Christianity, Hinduism, Islam, and Native American Religions. [3] (P)

RLST3119 - Martin Luther King, Jr., and the Social Roles of Religion
Course Description

King as religious leader and agent of social change. His views of the social roles of religion seen against the background of late nineteenth-century dissenting traditions and the early twentieth-century social gospel movement in America. Critical evaluations in terms of classical Christian views (e.g., Aquinas, Luther, Calvin, Wesley). [3] (US)

RLST3129 - Race and Religion in America
Course Description

The religious foundations of racial myths, symbols, images, conflicts, and cultures from the sixteenth century to the present. Gender, violence, sexuality, media, and popular culture. [3]. (US)

RLST3142 - Slave Religion and Culture in the American South
Course Description

The cosmologies, theologies, ethics, rituals, and material realities of enslaved Africans and African-Americans beginning in pre-colonial Africa and ending in the Civil War. Music, Movement, Myth, Magic, and Sexuality. [3] (US)

RLST3178 - Native American Religious Traditions
Course Description

Diversity of First Nation religious traditions in North America, especially Eastern Woodlands and Plains. Spiritual and cultural dimensions of diversity, cosmologies, stereotypes, cultural resilience, creativity and storytelling, humor, rituals and practices, healing, and sovereignty. [3] (HCA)

RLST3225 - Sexuality in the Hebrew Bible and the Ancient Near East
Course Description

Issues of sexuality in the Hebrew Bible in the context of the Ancient Near East. Homosexuality, virginity, and incest. [3] (HCA)

RLST3229 - The Holocaust: Its Meanings and Implications
Course Description

Interdisciplinary study of the systematic destruction of European Jewish communities during WWII. Historical, social, political, cultural developments that led to it. Psychological and sociological dimensions of its aftermath. Philosophical and theological problems it raises for both Jews and Christians. [3] (P)

RLST3270 - Jewish Theories of Religion
Course Description

Critical analysis and discussion of modern Jewish constructions of religion: politically, symbolically, ethically, normatively, and aesthetic-mystically. Selected readings from Cohen, Buber, Rosenzweig, Kaplan, and social philosophers such as Simmel and Habermas on the function, nature, and meaning of religion in secular culture. [3] (P)

RLST3304W - Evangelical Protestantism and the Culture Wars
Course Description

Evangelical traditions from the reformation to their present manifestations in twentieth-century America. Debates concerning the authority of the scripture, the person of Jesus Christ, evangelism, and soul-winning mission, revivalism and social reform, church-state relations, the relationship between science and religion, Biblical vs. "New" morality, and other areas of cultural cleavage. [3] (US)

RLST3306 - Global Interpretations of Christian Scriptures
Course Description

Comparative interpretations of Biblical texts by Christians in Africa, Asia, Latin America, and Oceania - with those by Orthodox Christians in Eastern Europe and the Middle East, and by Catholics and Protestants in Western Europe and North America. The role of culture in each type of biblical interpretation. [3] (INT)

RLST3312 - The Pauline Interpretation of Christianity
Course Description

An introduction to Pauline Christianity and its place in the early church, using the letters of Paul, the deutero-Pauline letters, and the portrait of Paul in Acts. [3] (HCA)

RLST3313 - Ethics of the New Testament
Course Description

Major ethical teachings as presented in New Testament documents, letters, and as interpreted through history and cultures. [3] (HCA)

RLST3316 - Christianity in the Reformation Era
Course Description

The setting of the Reformation (c. 1500-1648) and its developments together with consideration of some of the significant ecclesiastical, theological, and historical issues of the period. Attention to backgrounds and causes and examination of major individuals and ecclesiastical patterns. The aim of the course is to help students understand and interpret the events, become familiar with some of the major theological documents, and reflect upon questions of continuing historical interest that have come out of the Reformation. [3] (HCA)

RLST3350 - Christian-Jewish Relations in Medieval and Early Modern Europe
Course Description

Political and cultural history from the medieval persecutions to the expansion of religious toleration in the Enlightenment. Close consideration of legal toleration, banishments, re-admissions, and the impact of Christian reform movements. [3] (INT)

RLST3380 - History Christian Tradition
Course Description

Christian traditions from the origins to the present. Such themes as Christology, church and state, and the social and cultural contents of changing Christian beliefs, and views of the Church. [3] (HCA)

RLST3472 - Religion and Climate Change
Course Description

Role of religion in climate change and as response to planetary catastrophe. Religious and literary texts. Historical, philosophical, and anthropological work. [3] (P)

RLST3561 - Islam in South Asia
Course Description

History of Islam in South Asia. Cultural memory of conquest. Inter-religious interactions. Sufism and Bhakti. Mughal traditions of cosmopolitanism. Legacy of colonialism. Impact of Partition. Shared popular culture and shared sacred spaces. [3] (INT)

RLST3650 - Classical Philosophies of India
Course Description

Hindu and Buddhist traditions. The six "mainstream" schools (darsana) of Hindu thought and their interaction with Buddhist philosophy in ancient India. [3] (INT)

RLST3669 - Sacred Space in the Tibetan World
Course Description

Creation, mediation, and reproduction of sacred space from artifacts to built structures to geographies. Narrative, ritual, and cosmological aspects of Tibetan Buddhist, B√∂n, and local religious traditions. Cases include premodern to modern periods, and local to global contexts. [3] (INT)

RLST3670W - Buddhism and the State
Course Description

Models relating Buddhism and the state in ancient and modern Asia. Kingship and spiritual leadership; sacred territory and national identity; legitimation theory and its alternatives; and religious responses to the modern state. Case studies from India, Nepal, Thailand, Burma, Tibet, Mongolia, China, and Japan. [3] (INT)

RLST3747 - Daoist Tradition
Course Description

Historical and thematic survey of the Daoist tradition in China. Philosophical classics and religious scriptures, as well as social history are covered. Daoism today. [3] (HCA)

RLST3749 - Zen Buddhism
Course Description

A study of the development of Zen Buddhism in China and Japan with special attention to its basic philosophy, its position within Mahayana Buddhism, its meditational techniques, and its contemporary significance. [3] (INT)

RLST3753 - East Asian Buddhism
Course Description

East Asian Buddhist texts. Key Buddhist ideas, values, practices, and institutions. Chronological surveys of key developments in major historical periods. [3] (INT)

RLST3775 - Chinese Religions through Stories
Course Description

Analysis of narratives from various religious traditions and genres within early and medieval China. The role of narrative in Chinese religious, cultural, and political life. Primary texts in English translation. Offered on a graded basis only. [3] (INT)

RLST3850 - Independent Study
Course Description

May be repeated for a total of 6 credits in 3850 and 3851combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of RLST 3850 and 3851] (No AXLE credit)

RLST3851 - Independent Study
Course Description

May be repeated for a total of 6 credits in 3850 and 3851 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for all semesters of RLST 3850 and 3851] (No AXLE credit)

RLST3890 - Special Topics in Religious Studies
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

RLST3900 - Mysticism and Spirituality, Comparative Study
Course Description

Hindu, Buddhist, Jewish, and Christian texts, practices, and figures historically categorized as "mystics." Genealogies of the term "spirituality" as contemporary rubric for mystical and psycho-affective experiences. Philosophical, historical, and textual perspectives. [3] (P)

RLST3921 - Ethics and Ecology
Course Description

Relationships among humans, nature, and the sacred. Focus on understandings of our 'dominion' over non-human nature. The role of religion in shaping attitudes and behaviors regarding the environment. Topics include eco-centered ethics, 'creation care,' reliance on fossil fuels, and alternative sustainable scenarios. [3] (SBS)

RLST3926 - Ancient Goddesses
Course Description

Ancient concepts of the feminine divine in literature and iconographic evidence. Specific goddesses, their spheres of influence, and their place in the various pantheons. Cultic practices and religious syncretism across cultures, including Mesopotamia, Egypt, and Ancient Israel. Offered on a graded basis only. [3] (INT)

RLST3930 - Women and Religion
Course Description

Themes and issues in the traditions and texts of selected Western religions from a feminist perspective. Biblical and theological images of women, sources of religious authority, psychological and ethical implications of feminist approaches to religion. [3] (P)

RLST3940 - The Nature of Evil
Course Description

Human evil as expressed in the Shoah, religious fundamentalism, and ethnic cleansing. Theological, philosophical, biological, and literary texts. Evil transformed by scientific inquiry since 1600. [3] (HCA)

RLST3941 - Religion, Science, and Evolution
Course Description

Interactions between science and religion from antiquity to Charles Darwin. Subsequent modifications of Darwinism and religious responsibilities to evolutionary theories. [3] (SBS)

RLST4100 - Native American Philosophies
Course Description

Shared concepts and principles among contemporary Native American writers. Time, space, personhood, ecology, and healing. Spirituality and narrative ontology. [3] (HCA)

RLST4371 - Through the Eyes of the Other: A History of Muslim-Christian Relations
Course Description

Travelogues and interpretive accounts of encountering the religious and cultural 'Other,' Christian or Muslim. Increased awareness of long-standing relationship between two major religious traditions. Offered on a graded basis only. [3] (HCA)

RLST4551 - Islamic Mysticism
Course Description

Origins and development of mystical traditions in Islam; rise of asceticism; early Sufis; development and systematization of Sufi orders and teachings; evolution of theosophical dimensions of mysticism; present day Sufism and its spread in North America; comparison of Islamic mysticism with other forms of mysticism. [3] (HCA)

RLST4551W - Islamic Mysticism
Course Description

Origins and development of mystical traditions in Islam; rise of asceticism; early Sufis; development and systematization of Sufi orders and teachings; evolution of theosophical dimensions of mysticism; present day Sufism and its spread in North America; comparison of Islamic mysticism with other forms of mysticism. [3] (HCA)

RLST4552 - Islam in the Modern World
Course Description

Impact of colonialism on Muslim societies and everyday life in the cities of the Middle East. Analysis through literary, religious, political, and ethnographic texts. Relationship of Sharia to the modern state; impact of modernity on the understanding and practice of religion. [3] (INT)

RLST4554 - The Qur'an and Its Interpreters
Course Description

The Qur'an and the Islamic tradition of interpretation. The treatment of Biblical prophets, Jesus and Satan. Interpretations will be drawn from all time periods including rationalist, dogmatic, Shi'i and mystical schools of interpretation. [3] (INT)

RLST4554W - The Qur'an and Its Interpreters
Course Description

The Qur'an and the Islamic tradition of interpretation. The treatment of Biblical prophets, Jesus and Satan. Interpretations will be drawn from all time periods including rationalist, dogmatic, Shi'i and mystical schools of interpretation. [3] (INT)

RLST4562 - Culture, Religion, and Politics of the Arab World
Course Description

Diversity and unity in Arab culture. Religious, sociopolitical, and historical factors shaping Arab identity in the modern age. Encounters and relationships between Arabs and the Western world. The Israeli-Palestinian conflict. [3] (INT)

RLST4593 - Advanced Seminar in Islamic Tradition
Course Description

Analysis of original Arabic texts, manuscript reading, and research methods. Topics vary. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (HCA)

RLST4665 - Mythologies and Epics of South Asia
Course Description

Classical Hindu and Buddhist mythologies of South Asia. Sanskrit Mahabharata and Ramayana epics. Regional adaptations of mythical themes in vernacular languages. Buddhist and Islamic narratives of romance and chronicle. Interpretive and performance strategies. Oral, literary, and visual modes of representation. Political deployment of myths. [3] (INT)

RLST4666 - Devotional Traditions of South Asia: Hindu, Muslim, Sikh
Course Description

Mythology of Hindu pantheon and worship through devotion or bhakti. Techniques for inculcating devotion through meditation, temple rituals, and pilgrimage. Entry of Islam into South Asia. Shi'I and Sufi practices. Sikh traditions. Role of vernacular languages in creating local traditions. Hindu-Muslim interaction, syncretism, and shared sacred space. Challenges to orthodoxy. [3] (INT)

RLST4774 - Japanese Mythology
Course Description

Antiquity to the present. Classic myths and re-tellings over time. Introduction to theoretical frameworks including comparative and historical. Politics, gender, and performance. [3] (INT)

RLST4834 - Post-Freudian Theories and Religion
Course Description

An examination of contemporary European and American schools of psychoanalysis. Focus on both the clinical and explanatory theories as they relate to the examination of religious experience. Recommended: 1820. [3] (SBS)

RLST4835 - Freudian Theories and Religion
Course Description

A critical assessment of psychoanalytic theories as an explanation of religious behavior. Study of the basic structure of these theories followed by a systematic critique of texts by Sigmund Freud and Erik Erikson. Examination of religious narrative forms. [3] (SBS)

RLST4836 - The Religious Self according to Jung
Course Description

The religious core of human existence as related to the concepts of the archaic unconscious and the birth of the self in C. G. Jung's analytical psychology. Study of the life and thought of Jung as illustrated by his autobiography, Memories, Dreams, Reflections. Critical assessment of his theory as a means for understanding religious phenomena. [3] (SBS)

RLST4837 - Psychology of Religious Myth and Ritual
Course Description

Examination of religious rituals and myths from both Christian and other traditions. Critical review of major psychological theories of ritual and myth. Their relevance to an understanding of myth and ritual as religious phenomena. [3] (SBS)

RLST4938 - Marriage in the Ancient Near East and the Hebrew Bible
Course Description

Religious, legal, and socio-economic aspects of marriage. Survey of ancient Sumerian, Assyrian, Babylonian, and Egyptian sources, and relevant sections of the Hebrew Bible. Marriage as an institution at the beginning of recorded history. [3] (INT)

RLST4939 - Religious Autobiography
Course Description

The construction of identity in religious autobiography: motivations (personal salvation, witness, proselytism); relationships among self, God, and religious tradition; role of memory; cultural, gender, and religious differences. Readings may include Augustine, Gandhi, Malcolm X, Angelou, Wiesel. [3] (P)

RLST4960W - Approaches to the Academic Study of Religion
Course Description

Theories and methods for the academic study of religious traditions. Open only to junior and senior majors and minors. [3] (HCA)

RLST4970 - Majors Colloquium
Course Description

Regular presentations and critical readings of student projects and professional writings. May be repeated for credit twice for a total of 3 credit hours. Open only to majors. [1] (No AXLE credit)

RLST4998 - Senior Honors Thesis
Course Description

Reading of primary research sources and writing an honors thesis under the supervision of the thesis adviser. Open only to senior departmental honors students. [3] (No AXLE credit)

RLST4999 - Senior Honors Thesis
Course Description

Reading of primary research sources and writing an honors thesis under the supervision of the thesis adviser. Open only to senior departmental honors students. [3] (No AXLE credit)

Robert Penn Warren Center

RPW2333 - Rethinking Pandemics
Course Description

In this highly interactive class, students will participate in live action role play [LARP] to explore the complex medical and social dimensions of public health crises in the past. We will focus primarily on first-hand accounts of specific diseases (plague, smallpox, and cholera) as experienced from Antiquity to the nineteenth century. Students will also produce their own creative, first-hand accounts about their experiences with COVID-19. This work will be submitted to the COVID-19 archives at the Vanderbilt University Libraries so researchers and students in the future can learn more about the ways we lived through, and made sense of, the current moment. Not open to students who have completed 2333W. [3] (HCA)

RPW2333W - Rethinking Pandemics
Course Description

In this course, students will analyze first-hand accounts of pandemics to understand how public health crises were experienced and documented. They will make connections between lived experiences in the past to understand in deeper ways their own experiences during the current pandemic and create personal, first-hand accounts that document their experiences with COVID-19. (HCA) [3]

RPW2610W - A Hands On History of the American Research University
Course Description

Vanderbilt as a case study of the American research university after the Civil War. Literary and artistic works. Thematic and chronological attention: Rise of the University; the Gilded Age; Great Depression; World War II and the Cold War; the Civil Rights Movement; and the present day. Primary documents from the University Archives and Special Collections. [3] (US)

RPW3890W - Special Topics
Course Description

[3] (HCA)

Russian

RUSS1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

RUSS1101 - First-Year Russian
Course Description

Elementary conversation and reading with an emphasis on everyday situations. Introduction to Russian culture and life through contemporary Russian materials. No credit for students who have earned credit for a more advanced Russian language course. [4] (No AXLE credit)

RUSS1102 - First-Year Russian
Course Description

Continuation of 1101 with emphasis on reading and talking about texts. No credit for students who have earned credit for a more advanced Russian language course. Prerequisite: 1101. [4] (INT)

RUSS1105 - Beginning Conversation
Course Description

Expansion of grammar and vocabulary from RUSS 1101 and 1102. Basic fluency in speaking and aural comprehension. Vocabulary building, extemporaneous speaking, verb conjugation and governance, declension, and other language challenges. Literature, film, and extracts from broadcast media. Prerequisite: 1101. Prerequisite or Corequisite: 1102. [2] (No AXLE credit)

RUSS1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

RUSS1500 - Introduction to Russian and East European Studies
Course Description

History and culture of Russia and East Europe, 1700-present. Political history, intellectual history, literature, and culture of region. Russia and East Europe in historical and geopolitical context. [3] (P)

RUSS1874 - Russian Fairy Tales
Course Description

Perspectives from history, psychology, politics, gender, and religion. Fairy tale adaptations by Pushkin, Tolstoy, Stravinsky, Nabokov, Bulgakov, and others. Knowledge of Russian is not required. [3] (INT)

RUSS1910W - 19th Century Russian Literature
Course Description

Literature as a battleground for the conflict between traditional values and new, rationalistic values introduced by industrialization and modernization. Gender relations, role of religion, social status of art, and rise of radical political movements. Texts by Tolstoy, Dostoevsky, and Chekhov. Knowledge of Russian not required. No credit for students who earned credit for 2310. [3] (HCA)

RUSS1911W - 20th Century Russian Literature
Course Description

Masterpieces of literature as reflections of and reactions to massive social and political changes. Utopian and dystopian writing; literature as investigative reporting; and sincerity vs. postmodern irony. Return to nationalism in Putin's Russia. Including writings by Nabokov and six Nobel laureates: Bunin, Pasternak, Sholokhov, Solzhenitsyn, Brodsky, and Alexievich. Soviet and contemporary genre fiction. Knowledge of Russian is not required. [3] (HCA)

RUSS2201 - Second-Year Russian I
Course Description

Reading, speaking, listening, and writing. Grammar review and reading of contemporary Russian texts. Prerequisite: 1102. [4] (INT)

RUSS2202 - Second-Year Russian II
Course Description

Reading, speaking, listening, and writing. Grammar review and reading of contemporary Russian texts. Prerequisite: 2201. [4] (INT)

RUSS2205 - Intermediate Conversation
Course Description

Expansion of grammar and vocabulary from RUSS2201 and 2202. Advanced fluency in speaking and aural comprehension. Vocabulary building, extemporaneous speaking, verb aspect and governance, declension, and other language challenges. Literature, film, and extracts from broadcast media. Prerequisite: 2201. Prerequisite or Corequisite 2202. [2] (No AXLE credit)

RUSS2210 - Russia Today: Politics, Economics, and Culture
Course Description

Four-week immersion in the history and culture of Russia. Travel to and interaction with residents in Vladimir, Moscow, St. Petersburg, and rural areas. Excursions to UNESCO World Heritage sites and volunteering at community organizations. Pre-departure readings and an examination must be completed. Knowledge of Russian is not required. [3] (INT)

RUSS2230 - Russia at War
Course Description

Russia's wars as seen through depictions in literature, film, music, and video games. Works by Tolstoy, Eisenstein, Bulgakov, Babel, Borodin, and others. Knowledge of Russian not required. [3] (INT)

RUSS2273 - Russian Science Fiction
Course Description

Masterpieces of the genre including Tarkovsky's Solaris and Stalker, the novels of the Strugatsky Brothers, and Protazanov's Aelita. Various media ranging from literature and film to video games. Knowledge of Russian not required. Serves as repeat credit for students who have earned credit for RUSS 2273W [3] (INT)

RUSS2273W - Russian Science Fiction
Course Description

Radical ideas at the intersection of technology, ideology, and the human as physical form and humanity in science fiction. Masterpieces of the genre including Andrei Tarkovsky's films, the novels of the Strugatsky Brothers, and Protazanov's Aelita. Film, fiction, conceptual art, video games, and their historical contexts throughout the twentieth century. Knowledge of Russian not required. Serves as repeat credit for students who have earned credit for 2273. [3] (INT)

RUSS2434 - Russian Cinema
Course Description

Masterpieces of Russian and Soviet cinema from the silent period to the present. Montage theory, propaganda film, politics of the art house, and rise of the Russian blockbuster. Films by master directors Eisenstein, Vertov, Tarkovsky, Sokurov, and Zvyagintsev. Soviet musicals and contemporary popular cinema. Knowledge of Russian not required. [3] (INT)

RUSS2435 - Leo Tolstoy: Anna Karenina and Other Masterpieces
Course Description

Early stories and post-conversion novellas. Realist masterpiece Anna Karenina and its film adaptations. Moral inquiry in Tolstoy's writing. Philosophical and psychological exploration into the themes of love, adultery, religion, work, and art. Knowledge of Russian is not required. [3] (INT)

RUSS2436 - Tolstoy's War and Peace
Course Description

Tolstoy's famous novel in cultural, historical, political, and religious context. Selected early and late pieces by Tolstoy; critical commentaries on his place in Russian culture; and film and operatic adaptations of War and Peace. Tolstoy as artistic innovator, political anarchist, and significant moral voice for the 19th century. Serves as repeat credit for RUSS 2435 in Spring 2016. Knowledge of Russian is not required. [3] (INT)

RUSS2438 - Dostoevsky's The Brothers Karamazov
Course Description

Historical, social, political, philosophical, and religious contexts of one of the great epics of Western and Russian literature. Influence on 20th and 21st century literature and culture. Knowledge of Russian is not required. [3] (INT)

RUSS2460 - Modern Yiddish Literature in Translation
Course Description

Late nineteenth to mid-twentieth century. Diaspora, minority writing, gender, from shtetl to city, and the Holocaust. [3] (INT)

RUSS2463 - The Jewish Diaspora
Course Description

Changing Jewish communities, especially outside the United States and Israel, in macro-historical context. Post-communist European Jewish identity. New global diasporas and their relationship to the largest Jewish communities in Israel and the United States. [3] (INT)

RUSS2485 - Russian Crime Fiction
Course Description

Dostoevsky, Tolstoy, Nabokov, and others. Contemporary Russian interpretations of Sherlock Holmes and of classic Russian crime cinema. Knowledge of Russian is not required. [3] (INT)

RUSS2537 - Vladimir Nabokov
Course Description

Major works including The Luzhin Defense, Lolita, Pnin, and Pale Fire. Examination of Nabokov's life through his memoir, Speak, Memory, and excerpts from his unfinished final novel, The Original of Laura. Knowledge of Russian is not required. [3] (INT)

RUSS2600 - Women and Resistance in Russia
Course Description

Cultural and political history of women's resistance in Russia, starting in the Putin era working back through the Soviet Union and Imperial Russia to Medieval saints. The concept of resistance and the specificity of female resistance in Russia. Historical narrative in light of missing sources. [3] (INT)

RUSS2639 - From the House of the Dead: Stories of Siberia
Course Description

Depictions of Siberia from Russian and outside perspectives. Exile, imperial conquests, the Stalinist gulag, and native Siberian cultures. Works on Siberia by Dostoevsky, Tolstoy, Chekhov, Solzhenitsyn, Shostakovich, Kurosawa, and Herzog. Pasternak's Siberia-themed masterpiece Doctor Zhivago and writings by native Siberians. Knowledge of Russian not required. [3] (INT)

RUSS2745 - Radical Art: The Avant-Garde Revolution
Course Description

Introduction to experimental art-both verbal and visual-in the 1910s-1930s. Movements studied: Cubism, Futurism, Dadaism, Suprematism, Constructivism, and Surrealism through the avant-garde's engagement with various genres and media: the manifesto, performance, sound and image poetry, painting, photomontage, artist's book, magazine, film and architecture. Taught in English. [3] (INT)

RUSS2800 - Viewing Communism in Eastern Europe
Course Description

Exploration of life in Communist Eastern Europe through film, memoir, fiction, photography, and documents. Life in a police-state, variations of socialism, dissent, public memory of the Second World War, revolution, and Communist nostalgia and legacy. Taught in English. [3] (INT)

RUSS2810 - Revolutions and Post-Communisms in Eastern Europe and Eurasia, 1981-2010
Course Description

Life in the Soviet Imperium. Revolutions of 1989 in Eastern Europe. Disintegration of the U.S.S.R., 1989-1991. Challenges of neoliberal transitions to free-market democracies. Post-socialist culture. Ecology and environmentalism; globalization; gender; religion and ideology; mass media; violence; ethno-nationalism; and authoritarianism. Taught in English. Serves as repeat credit for students who have earned credit for HIST 2212, EUS 2212 or RUSS 2810/5810. [3] (P)

RUSS2820 - Eastern Europe: Critical Encounters
Course Description

Eastern Europe from Enlightenment to 1989. Nineteenth century imperial competition, birth of nation-states. Minority rights, World War II and the Holocaust, socialist experimentation, police state, and dissent. Revolutions of 1989. [3] (INT)

RUSS2890 - Russian Religious Imagination
Course Description

Russian religious thought from its Byzantine roots to collapse of the Holy Empire in the Bolshevik Revolution of 1917. Role of Orthodox Christianity as a defining force in Russian culture. Taught in English. [3] (INT)

RUSS2910 - Russia: Old Regime to Revolution
Course Description

Russian history from the early nineteenth-century old regime through the Russian Revolution of 1917. Culture, society, and serfdom; the Great Reforms, ideology, and radicalism; industrialization; modernity in an agrarian society; twentieth-century revolutions. [3] (INT)

RUSS2915 - Russia: The U.S.S.R. and Afterward
Course Description

Russian history since the 1917 Revolution. Overview of the old regime; revolution and civil war; the Soviet "Roaring '20s"; Stalinism and the totalitarianized society; World War II. Postwar Soviet society and culture; de-Stalinization and the sixties generation; Gorbachev, perestroika, and disintegration; contemporary history. [3] (INT)

RUSS3303 - Advanced Grammar and Reading
Course Description

Advanced grammar and reading skills. Prerequisite: 2202. [3] (INT)

RUSS3305 - Advanced Conversation and Composition
Course Description

Advanced conversation and composition skills. Prerequisite: 2202. [3] (INT)

RUSS3306 - Advanced Russian Language through Culture and Literature
Course Description

Literature, history, aesthetics, and politics in Russian-speaking cultures. May be repeated for credit if there is no duplication in topic. Prerequisite: 2202. [3] (INT)

RUSS3307 - Advanced Russian Language through Visual Culture and Media
Course Description

Cinema, media arts, visual culture, and media history of Russian-speaking cultures from pre-digital to the digital age. May be repeated for credit if there is no duplication in topic. Prerequisite: 2202. [3] (HCA)

RUSS3308 - Advanced Russian Language through Russian Society
Course Description

Seminal aspects of Russian literature, culture, and civilization through interdisciplinary lenses. May be repeated for credit if there is no duplication in topic. Prerequisite: 2202. [3] (P)

RUSS3333 - Special Offering
Course Description

Topics vary. [3]

RUSS3850 - Independent Readings
Course Description

Designed for majors and qualified undergraduates. Projects are carried out under the supervision of a member of the department. All projects must be approved by the department. May be repeated for a total of 6 credits over a four-semester period in 3850 and 3851 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 6 credits total for four semesters of RUSS 3850 and 3851] (No AXLE credit)

RUSS3851 - Independent Readings
Course Description

Designed for majors and qualified undergraduates. Projects are carried out under the supervision of a member of the department. All projects must be approved by the department. May be repeated for a total of 6 credits over a four-semester period in 3850 and 3851 combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. [3; maximum of 6 credits total for four semesters of RUSS 3850 and 3851] (No AXLE credit)

RUSS3880 - Internship Training
Course Description

Under faculty supervision, students gain experience working in a variety of settings, such as civic, corporate, cultural, government, health, media, political, research, and social welfare organizations in the United States and Russia. Background reading and research must be completed in Russian 3881 concurrently with 3880. A minimum of 3 hours of 3881 must be completed, independent of hours taken in 3880. Students may earn up to 6 hours of 3881 credit. A research paper and report must be submitted at the end of the semester during which the internship training is completed. A 2.90 grade point average and prior approval of the director of undergraduate studies of the student's plans are required. Offered on a Pass/Fail basis only and must be taken concurrently with 3881. Hours of 3880 cannot be included in the minimum hours counted toward the Russian majors or minors. Corequisite: 3881. [Variable credit: 1-9] (No AXLE credit)

RUSS3881 - Internship Readings and Research
Course Description

Under faculty supervision, students gain experience working in a variety of settings, such as civic, corporate, cultural, government, health, media, political, research, and social welfare organizations in the United States and Russia. Background reading and research in Russian 3881 must be completed concurrently with 3880. A minimum of 3 hours of 3881 must be completed, independent of hours taken in 3880. Students may earn up to 6 hours of 3881 credit. A research paper and report must be submitted at the end of the semester during which the internship training is completed. A 2.90 grade point average and prior approval of the director of undergraduate studies of the student's plans are required. Corequisite: 3880. [Variable credit: 3-6] (No AXLE credit)

RUSS3890 - Selected Topics
Course Description

May be repeated for a total of 12 credit hours in 3890 and 3891 combined if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3; maximum of 12 credit hours total for all semesters of RUSS 3890 and 3891] (No AXLE credit)

RUSS3891 - Selected Topics
Course Description

May be repeated for a total of 12 credit hours in 3890 and 3891 combined if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [1-3; maximum of 12 credit hours total for all semesters of RUSS 3890 and 3891] (No AXLE credit)

RUSS4999 - Senior Honors Thesis
Course Description

[3] (No AXLE credit)

Sanskrit

SNSK1101 - Elementary Sanskrit I
Course Description

Fundamental elements of Sanskrit language in Devanagari script. [3] (No AXLE credit)

SNSK1102 - Elementary Sanskrit II
Course Description

Development of reading, pronunciation, recitation, and grammatical proficiency. Materials from classical works of religion, philosophy, folklore, drama, and poetry. Discussion of Sanskrit milieu and historical development. Prerequisite: 1101. [3] (HCA)

SNSK2201 - Intermediate Sanskrit I
Course Description

Readings in authentic works of philosophy, religion, poetry, history, and drama. Prerequisite: 1102. [3] (HCA)

SNSK2202 - Intermediate Sanskrit II
Course Description

Readings in authentic works of philosophy, religion, poetry, history, and drama. Prerequisite: 2201. [3] (HCA)

SNSK3301 - Advanced Sanskrit I
Course Description

Advanced training in Sanskrit language and literature. Drama, poetry, religion, philosophy, and law. Prerequisite: 2202. [3] (HCA)

SNSK3302 - Advanced Sanskrit II
Course Description

Advanced training in Sanskrit language and literature. Drama, poetry, religion, philosophy, and law. Prerequisite: 3301. [3] (HCA)

Science Education

SCED2330 - Pedagogy Seminar
Course Description

This pedagogy seminar accompanies a core course in the College of Arts & Sciences and examines the process of teaching and learning of that course content. Students enrolled in the core course lecture may elect to participate in this accompanying pedagogy seminar. This optional seminar will be team-taught by the core course instructor and an education faculty member. [2]

SCED3240 - Teaching Science in Elementary Schools
Course Description

Study of the nature of science, discovery (inquiry) teaching and learning, curriculum approaches, goals and standards, trends, instructional and assessment strategies, and resources and materials for teaching science in grades K-5, with emphasis on grades 2-5. [2]

SCED3320 - Introduction to Literacies in Science
Course Description

This course is intended for licensure candidates in secondary science education and for other students who want to explore the concepts and practices of disciplinary literacy, that is, the links between content and communication. [3]

SCED3370 - Teaching Science in Secondary Schools
Course Description

Study of instructional approaches, materials, curriculum resources, trends, inquiry teaching and learning, for teaching in secondary schools. Required for secondary school licensure in the sciences. Prerequisite: EDUC 3310 or consent of instructor. Corequisite: SCED 3371. [3]

SCED3371 - Professional Year Practicum
Course Description

Observation, participation, and teaching in middle school and secondary school settings. Corequisite SCED 3370 [1-3]

SCED3400 - Modeling in the Secondary Science Classroom
Course Description

This course is intended for licensure candidates in secondary science education and for other students who want to explore modeling in the secondary science classroom. [3]

SCED3850 - Independent Study in Science Education
Course Description

Semi-independent study on selected topics in science education. May be repeated. Consent of supervising instructor required. [1-3]

SCED3890 - Special Topics in Science Education
Course Description

Exploration of a special topic related to science education. May be repeated with change of topic. [1-3]

SCED4963 - Student Teaching Seminar: Secondary
Course Description

Seminar to accompany EDUC 4953. A $300.00 Teacher Performance Assessment fee is associated with this course. [3]

Scientific Computing

SC3250 - Scientific Computing Toolbox
Course Description

Use of computational tools in multiple science and engineering domains. Simulations of complex physical, biological, social, and engineering systems, optimization and evaluation of simulation models, Monte Carlo methods, scientific visualization, high performance computing, or data mining. Prerequisite: CS 2201 or 2204; MATH 1100 or higher. FALL. [3]

SC3260 - High Performance Computing
Course Description

Parallel computing, grid computing, GPU computing, data communication, high performance security issues, performance tuning on shared-memory-architectures. Prerequisite: CS 2201 or 2204. SPRING. [3]

SC3850 - Independent Study
Course Description

Development of a research project by the individual student under the direction of a faculty sponsor. Project must combine scientific computing tools and techniques with a substantive scientific or engineering problem. Consent of both the faculty sponsor and one Director of the SC minor is required. Prerequisite: SC 3250. [1-3]

SC3851 - Independent Study
Course Description

Development of a research project by the individual student under the direction of a faculty sponsor. Project must combine scientific computing tools and techniques with a substantive scientific or engineering problem. Consent of both the faculty sponsor and one Director of the SC minor is required. Prerequisite: SC 3250. [1-3 each semester]

SC3890 - Special Topics
Course Description

[1-3]

Social Studies Education

SSED2100 - Scientific and Historical Reasoning in Young Children
Course Description

This course focuses on issues of the development of subject matter reasoning and understanding in young children. The course will examine the interplay between informal and formal experiences that influence the development of scientific and historical reasoning as children transition from their intuitive theories to a more formal study of subject matter disciplines. [3]

SSED2300 - Pedagogy Seminar
Course Description

This pedagogy seminar accompanies a core course in the College of Arts & Sciences and examines the process of teaching and learning of that course content. Students enrolled in the core course lecture may elect to participate in this accompanying one credit pedagogy seminar. This optional seminar will be team-taught by the core course instructor and an education faculty member. [1]

SSED3240 - Teaching Social Studies in Elementary Schools
Course Description

Study of conceptual structure of social studies curricula with emphasis on curricular objectives, instructional approaches, teaching materials, and evaluative strategies focusing on teaching social studies in grades K-5, with emphasis on grades 2-5. Corequisite: SCED 3240 and EDUC 3240. [2]

SSED3260 - Human Geography
Course Description

(Also listed as SSED 6240 for Professional Students) An examination of the human and cultural aspects of various regions of the world including the spatial manifestations of culture, population distribution and movements, language, religion, ethnicity, political geography and resource issues. The course examines human geography themes at local, national and international levels and probes the nature of geographical thinking and the characteristics of geography as a social science. [3]

SSED3320 - Introduction to Literacies in the Social Studies
Course Description

This course is intended for licensure candidates in secondary education for social studies and for other students who want to explore the concepts and practices of disciplinary literacy that is the links between content and communication. [3]

SSED3370 - Teaching Social Studies in Secondary Schools
Course Description

Instructional principles and techniques of teaching social studies. Required of students seeking secondary school licensure in social studies, a social science field, or history. Prerequisite: EDUC 3310 or consent of instructor. Corequisite: SSED 3371. [3]

SSED3371 - Professional Year Practicum
Course Description

Observation, participation, and teaching in middle school and secondary school settings. Corequisite: SSED 3370 [1-3]

SSED3850 - Independent Study in Social Studies Education
Course Description

Semi-independent study on selected topics in social studies education. May be repeated. Consent of supervising instructor required. [1-3]

SSED3890 - Special Topics in Social Studies Education
Course Description

Exploration of special topics related to social studies education. May be repeated with change of topic. [1-3]

SSED4963 - Student Teaching Seminar: Secondary
Course Description

Seminar to accompany EDUC 4953. A $300.00 Teacher Performance Assessment fee is associated with this course. [3]

Sociology

SOC1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE Credit)

SOC1010 - Introduction to Sociology
Course Description

The study of human society; the nature of culture and its organization. Processes of communication, socialization, mobility, population growth. Repeat credit for students who have completed 1010W. [3] (SBS)

SOC1010W - Introduction to Sociology
Course Description

The study of human society; the nature of culture and its organization. Processes of communication, socialization, mobility, population growth. Repeat credit for students who have completed 1010. No credit for students who have earned credit for 103. [3] (SBS)

SOC1020 - Contemporary Social Issues
Course Description

Social change, conflict, and inequality in modern societies. Basic sociological concepts and methods as they apply to social issues and policy. Focus varies by section. Repeat credit for students who have completed 1020W. [3] (SBS)

SOC1020W - Contemporary Social Issues
Course Description

Social change, conflict, and inequality in modern societies. Basic sociological concepts and methods as they apply to social issues and policy. Focus varies by section. Repeat credit for students who have completed 1020. [3] (SBS)

SOC1030 - Environment and Society
Course Description

Inequality, population, social change, technology, and the state. Application of concepts from general sociology and environmental sociology to environmental problems across institutional sectors such as food, water, energy, health, and transportation. [3] (SBS)

SOC1041 - Men and Women in American Society
Course Description

This course focuses on ideas about masculinity and femininity and how these ideas carry with them inequalities in the distribution of power and resources available to men and women. We examine how gender permeates seemingly neutral aspects of everyday life - how we date, sexuality, family life, work relationships, political life, media images. Repeat credit for students who have completed 1041W. [3] (P)

SOC1041W - Men and Women in American Society
Course Description

This course focuses on ideas about masculinity and femininity and how these ideas carry with them inequalities in the distribution of power and resources available to men and women. We examine how gender permeates seemingly neutral aspects of everyday life - how we date, sexuality, family life, work relationships, political life, media images. Repeat credit for students who have completed 1041. [3] (P)

SOC1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

SOC2100 - Statistics for Social Scientists
Course Description

Descriptive and inferential statistics with social science research applications. Sampling issues; describing data with measures of central tendencies and dispersion; hypothesis testing using categorical and continuous indicators; multivariate techniques for continuous, categorical, and time dependent data. Limited to majors and minors in Sociology, Public Policy Studies, and Communication of Science and Technology, with preference given to Sociology majors and minors. [3] (SBS)

SOC3001 - Sociological Perspectives
Course Description

Major classical and contemporary sociological perspectives such as symbolic interactionism, functionalism, and conflict sociology. Attention to the orientation and style of outstanding representatives of each perspective. Analysis in terms of basic concepts, central questions, substantive themes, methodology, and bearing on contemporary social issues. [3] (P)

SOC3002 - Introduction to Social Research
Course Description

Overview and evaluation of research strategies. Interpretation of qualitative and quantitative data. Research methods and design. Evaluate research ethics, research hypotheses, and literature reviews. Prerequisite: 1010, 1010W, 1020, 1020W, or 1030. Open only to sociology, environmental sociology, and public policy majors. [3] (SBS)

SOC3003 - Research Practicum
Course Description

Review of sociological concepts and methods coupled with experience in data collection and analysis as applied to a research project underway by one or more sociology faculty members. May be repeated for a total of 6 credits if there is no duplication of content. [3] (No AXLE credit)

SOC3201 - Cultural Consumption and Audiences
Course Description

How audiences and consumers engage with art and culture - from popular music to film, classical art, fashion, and food. [3] (SBS)

SOC3202 - Cultural Production and Institutions
Course Description

The production of culture. The role of artists, firms, and markets in creating cultural objects, ideas, and practices, including novels, television and news, science, music, visual arts, and food. [3] SBS

SOC3203 - Art in Everyday Life
Course Description

Art and the public sphere. Cultural analysis, critical theory, art production and reception, curation, ethnography. [3] (SBS)

SOC3204 - Tourism, Culture, and Place
Course Description

Nature of tourist encounters. Marketing and displaying culture to tourists. Implications for urban economies and landscapes, and for tourists and locals. Ethics and dilemmas. Nashville as case study. Field-trip based learning. Frequent travel off-campus will pose scheduling conflicts with other classes immediately prior or after. Prerequisite 1010 or other Sociology class. [3] (SBS)

SOC3205 - Seeing Social Life
Course Description

History, theory, and ethics of visual images in sociological research. Truth status of visual data. How individuals and groups use photographs to make sense of social worlds. Race, ethnicity, gender, social class, and their visual documentation. Methods for collection and analysis of visual data, especially photographs. Prerequisite: SOC 1010, 1010W, 1020, 1020W, 1041, 1041W, or ANTH 1101. [3] (SBS)

SOC3207 - Popular Culture Dynamics
Course Description

Examination of theories and research that link culture and society. Consideration of the mass media arts with particular emphasis on popular music. Focus on creators, industry, and audiences. [3] (SBS)

SOC3213 - Artists, Community, and Democracy
Course Description

Communities of diverse artists, minority viewpoints, and cultural pluralism in a democratic society. Contemporary United States with cross-cultural and historical comparisons. [3] (SBS)

SOC3221 - The Family
Course Description

Study of the relationship of family structure to social organization. Comparative and historical approaches to the family. Recent changes in the American family. Courtship, marriage, marital adjustment, parenthood, and family dissolution in relation to contemporary American society. [3] (P)

SOC3222 - Sociology of Religion
Course Description

Theories of the nature, function, and structure of religion. Religion in America, including fundamentalism, the Black Church, and cults. How religion changes and is changed by secular society. [3] (SBS)

SOC3223 - Schools and Society: The Sociology of Education
Course Description

How schools affect individuals and relate to institutions: the government, the economy, social classes, and families. How social attributes, including race and class, affect academic achievement. Controversies such as desegregation and intelligence testing. [3] (SBS)

SOC3224 - Sociology Through Baseball
Course Description

Baseball as a social institution. Group dynamics; baseball as work and business. Free agency and law; race and ethnic relations. Globalization. Serves as repeat credit for students who have earned credit for 3224W. [3] (SBS)

SOC3224W - Sociology Through Baseball
Course Description

Baseball as a social institution. Group dynamics, baseball as work and business. Free agency and law, race and ethnic relations, and globalization. Serves as repeat credit for students who have earned credit for 3224. [3] (SBS)

SOC3231 - Contemporary Latin America
Course Description

Current history and long-term trends; regional trade. Development strategies and social inequalities. Hispanic Americans, immigration, and the U.S. border; the war on drugs. Race, music, and popular culture. [3] (INT)

SOC3232 - Contemporary Mexican Society
Course Description

Sociological understanding of contemporary Mexican society. Historical roots of the modern Mexican state. Economic, political, and social institutions operating in Mexico, formal and informal structures, and their consequences. [3] (INT)

SOC3233 - Contemporary American Society
Course Description

Shifts in the political, economic, and social structure of the United States; changes in technology, demography, and social mores. [3] (US)

SOC3236 - American Jewish Life
Course Description

Diversity, individualism, and change in Jewish life. Food and culture, memory and identity, gender and assimilation, Reform-Conservative-Orthodox culture wars. [3] (SBS)

SOC3240 - Emergent Technologies and Social Life
Course Description

Integration of new technologies into contemporary social life; structural dynamics of socio-technical systems. Foundational theories of technology in society. Digital, data-driven, and automated technologies through recent field-defining monographs; mutually influential relationship between technical and social currents. [3] (SBS)

SOC3242 - AI in Social Systems
Course Description

Artificial intelligence across social institutions. Inequality reflected and perpetuated through data and automation. Cutting-edge questions and problems from a sociological perspective. [3] (SBS)

SOC3301 - Society and Medicine
Course Description

Cultural and social factors in the perception, definition, diagnosis, treatment, and distribution of disease. Doctor-patient relations; role of nurses and other health professions. Social consequences of hospitals, medical technology, medical specialization, and health insurance. [3] (SBS)

SOC3302 - Poverty, Health, and Politics
Course Description

Politics of poverty, health, and social welfare policy in the U.S. from the 1930s to the present. Profiles of poverty and health. Social change, social movements, advocacy, and social enterprise. [3] (SBS)

SOC3303 - Social Dynamics of Mental Health
Course Description

Definition and classification of mental health and mental illness. Emphasis on social factors affecting mental health. Different ways of responding to persons in poor mental health and consequences of particular responses. [3] (SBS)

SOC3304 - Race, Gender, and Health
Course Description

Effect of racial and ethnic background, gender, socioeconomic status, sexual identity, and age or generation on the experiences of health, illness, medical institutions, and work in the health professions. [3] (SBS)

SOC3305 - Social Networks and Health
Course Description

How social networks generate health inequality. Survey instruments for measuring social networks. Network-based concepts and theories, including social integration, cohesion, capital, regulation, support, negative interactions and exchanges, negative social comparison, contagion, and social cost. [3] SBS

SOC3306 - Gender and Medical Work
Course Description

Gender inequality in the health professions. Relationship between gender inequality and other forms of inequality in health care work. [3] (SBS)

SOC3311 - Climate Change and Society
Course Description

The sociology of climate change, including efforts to reduce greenhouse gases and problems caused by climate change. Comparative analysis of how governments and businesses develop strategies to adapt to climate change. [3] (SBS)

SOC3312 - Environment and Development
Course Description

Relationship between economic development and the natural environment. Implications of development on our contemporary ways of life and the environmental conditions of our planet. Different models of development for both Western industrial and developing societies, from early imperialism to contemporary globalization. Current global environmental crises, problems of environmental inequality and injustice, and social movements for alternative development initiatives. [3] (SBS)

SOC3313 - Sociology of Health and Environmental Science
Course Description

Basic concepts in the sociology of science and their applications to controversies in the health and environmental sciences. Toxins and risk, nutrition, and health. Health and environmental aspects of emerging technologies. Case studies to develop generalizable social-science hypotheses. [3] (SBS)

SOC3314 - Environmental Inequality and Justice
Course Description

Relationships between social inequalities and environmental degradation, both in the U.S. and internationally. Distribution of environmental hazards across race and class, natural resource rights and management, urban health and sustainability, climate injustices, and environmental justice movements. [3] (SBS)

SOC3315 - Human Ecology and Society
Course Description

Demography, social organization, technology, and the global environment. Shifting energy systems; sustainable industries; food production. Growth vs. development. Affluence, waste, and recycling. [3] (INT)

SOC3316 - Business, Civil Society, and the Environment
Course Description

Environmental sustainability and social responsibility; interactions among private sector, civil society, state, and consumers. Social movements and industry, politics of green consumption, and rise of third-party certification movements and private governance. Agriculture, fishing, and forestry industries. [3] (SBS)

SOC3317 - Energy Transitions and Society
Course Description

Comparisons of contemporary societies' transition to low-carbon energy systems. Emphasis on renewable energy and energy efficiency. Perspectives include both wealthy and poor countries. [3] (INT)

SOC3318 - Sociology of Green Jobs
Course Description

Comparative, historical, and theoretical perspectives of the contemporary transformation of work and employment in green jobs. Emphasis on the U.S. economy. [3] (SBS)

SOC3319 - NGOs, Society, and Climate Change
Course Description

Nonprofits as complex and diverse actors engaged in climate mitigation, climate adaptation, policy, and energy justice. Logics of nonprofit organizations; grant-writing. Perspectives and insights from sociology, political science, and nonprofit studies. [3] (SBS)

SOC3321 - Population and Society
Course Description

The mutual influence of demographic factors and social structure. Trends in fertility, mortality, population growth, distribution, migration, and composition. Population policy and national development. [3] (INT)

SOC3322 - Immigration in America
Course Description

Theories of international migration, with an emphasis on migration as a social process. Economic and social impact, including assimilation, immigrant incorporation, and the second generation. The migrant experience, including transnational practices, and how immigration redefines race, ethnicity, and gender. Immigration history of the United States. Current U.S. immigration law and policy. Debate on open borders. [3] (SBS)

SOC3333 - Special Offering
Course Description

Topics vary. [3]

SOC3601 - Self, Society, and Social Change
Course Description

Problems and prospects for individual participation in social change; volunteering, community service, and philanthropy; role of individuals and voluntary associations in social change. [3] (SBS)

SOC3602 - Change and Social Movements in the Sixties
Course Description

Mid-1950s to mid-1970s. The rise and influence of social movements in the 1960s, including civil-rights, student, anti-Vietnam War, feminist, and countercultural. [3] (SBS)

SOC3603 - Women and Social Activism
Course Description

History of women's participation in social movements. Women's citizenship, environmentalism, second- and third-wave feminism, hate movements, and global feminist activism. Theories of mobilization, collective identity, strategy, and movement outcomes. Not open to students who have earned credit for SOC 1111 Section 17 without permission. Total credit for this course and SOC 1111 Section 17 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3] (SBS)

SOC3604 - American Social Movements
Course Description

Key social movements in American society. Mobilization, strategy, and effects of movements such as civil rights, LGBT+, feminism, environmental, and labor movements. [3] (US)

SOC3605 - Law and Social Movements
Course Description

Social activists and their relationship to the law and legal institutions. Activist litigation, movement legislative influence, protest policing, government surveillance of activists, and rights consciousness. Civil rights, women's, LGBT, environmental, and labor movements. [3] (SBS)

SOC3611 - Women and the Law
Course Description

History of laws in the U.S. subordinating women. Efforts by feminists to achieve substantive and procedural equity. Employment, educational, reproductive, and criminal law, and women's role in the legal profession. [3] (P)

SOC3612 - Class, Status, and Power
Course Description

Analysis of the competition for jobs, advancement, and income. The influence of social background, education, politics, race, sex, changes in national economy, and other factors will be considered. Theoretical and empirical analysis focusing on the United States. [3] (SBS)

SOC3613 - Law and Society
Course Description

Law, inequality, and racial, ethnic, gender, and economic groups in society. Operation of the legal system, including lawyers, courts, and police. Advantages and disadvantages in law. Law's role in social change. [3] (SBS)

SOC3614 - Politics, State, and Society
Course Description

The relationship between state and society; the nature and distribution of power in democratic society; the social conditions necessary for democracy; social movements and protest in political change; and the politics of public policy making. Attention to political actions, definitions of citizenship, and political ideology. [3] (SBS)

SOC3615 - Human Behavior in Organizations
Course Description

Organizations are treated as resources in the production and distribution of goods and services. Case analyses from the economy are reviewed to diagnose "organizational pathologies" and to understand reciprocal impacts among organizational structures, leaders, and citizens. [3] (SBS)

SOC3616 - Women and Public Policy in America
Course Description

A study of public policies as they affect women in contemporary American society. Issues considered include participation of women in the labor force; effects of employment patterns on the family; birth control, abortion, and health care policies; child care; participation of women in political processes; divorce, child support, and custody; affirmative action policies; present governmental remedies and proposed alternatives. [3] (SBS)

SOC3621 - Criminology
Course Description

The nature, distribution, causes, and control of crime with emphases on contemporary American society and a broad range of types of crime. [3] (SBS)

SOC3622 - Delinquency and Juvenile Justice
Course Description

The nature, distribution, causes and control of juvenile delinquency and the operation of the juvenile justice system in contemporary American society. [3] (SBS)

SOC3623 - Deviant Behavior and Social Control
Course Description

The social causes of, and societal reactions to, several types of deviant behavior (e.g., juvenile delinquency, crime, sex deviance, mental illness). Examines the probable consequences of suggested solutions to reduce different types of deviant behavior. [3] (SBS)

SOC3624 - Prison Life
Course Description

Prison life from the perspective of prisoners, officials, and the society in which they operate. [3] (SBS)

SOC3625 - American Policing: Evolution and Controversy
Course Description

History of US policing, source of maintenance of its power. Selected police brutality and other misconduct including current events. Police unions, militarization, force continuum, consent decrees, asset forfeiture. Role of media and community. Probing look at role of the police. Serves as repeat credit for SOC 3333 section 01 offered Spring 2023, SOC 3333 section 01 offered Spring 2022, SOC 3333 section 01 offered Spring 2021. [3] (SBS)

SOC3701 - Racial Domination, Racial Progress
Course Description

Racial and ethnic relations in contemporary American society. Impact of race and ethnicity on education, economics, politics, family, and health. Study of Whites, Blacks, Hispanics, Asians, and Native Americans. Color-blind ideology. [3] (SBS)

SOC3702 - Racial and Ethnic Minorities in the United States
Course Description

Status of blacks, Asians, Hispanics, and other minorities. Migration, identity and association, and strategies to improve group status and reduce intergroup tensions. Comparisons to other countries. [3] (SBS)

SOC3703 - Social Psychology of Prejudice
Course Description

Prejudice and its amelioration. Problems of relations between blacks and whites in the United States. [3] (SBS)

SOC3704 - Race, Gender, and Sport
Course Description

Manifestations of race and gender in sport. Emphasis on race and gender ideologies and the associated inequalities in sport in America. International comparisons for context. [3] (SBS)

SOC3711 - Women, Gender, and Globalization
Course Description

Globalization and its impact on women and gender relations. Multinational corporations, economic development, and inequality; new forms of work; human rights; feminist movements for change. [3] (INT)

SOC3722 - Gender in Society
Course Description

Theoretical approaches to gender relations with a focus on the contemporary U.S. Evolution of gender stereotypes, gender socialization over the life course, gender in social interactions, institutional sources of gender inequality, and intersections of gender with race, social class, and sexual identity. Topics include work, school, families, health, and intimate relationships. [3] (SBS)

SOC3723 - Gender, Sexuality, and the Body
Course Description

The body is a physical marker of gender and sexuality. Biological reproduction is saturated with social meanings - shaping ideas about masculinity, femininity, the gender division of labor, and heterosexuality. In this course, we will look at the body as reflexive project and as the site of historical and ideological significance. We address race, ethnicity, physical abilities, and class in explaining variations in cultural ideals. [3] (SBS)

SOC3724 - Gender Identities, Interactions, and Relationships
Course Description

Gender identities form and influence interactions in friendships, intimate relations, families, education, and other institutions. Changes and continuities in gender roles within the United States and ways in which race, class, and sexual orientation intersect processes of gender relations. [3] (SBS)

SOC3851 - Independent Research and Writing
Course Description

May be repeated for a total of 6 credits. Students may enroll in more than one section of this course each semester. [1-6; maximum of 6 credits total for all semesters of 3851] (No AXLE credit)

SOC3880 - Internship Training
Course Description

Under faculty supervision, students gain experience in any of a variety of settings, such as civic, corporate, cultural, government, health, media, political, research, and social welfare organizations. Background reading and research will be completed in Sociology 3881 concurrently with the completion of internship training, Sociology 3880. A minimum of 3 hours of 3881 must be completed with hours taken in 3880. A research paper and report must be submitted at the end of the semester during which the internship training is completed. A 2.90 grade point average, completion of 6 hours of prior work in sociology, and prior departmental approval of the student's plans are required. Offered on a pass/fail basis only and must be taken concurrently with 3881. Hours of 3880 may not be included in the minimum hours counted toward the sociology major. Corequisite: 3881. [1-9] (No AXLE Credit)

SOC3881 - Internship Readings and Research
Course Description

Under faculty supervision, students gain experience in any of a variety of settings, such as civic, corporate, cultural, government, health, media, political, research, and social welfare organizations. Background reading and research will be completed in Sociology 3881 concurrently with the completion of internship training, Sociology 3880. A minimum of 3 hours of 3881 must be completed with hours taken in 3880. A research paper and report must be submitted at the end of the semester during which the internship training is completed. A 2.90 grade point average, completion of 6 hours of prior work in sociology, and prior departmental approval of the student's plans are required. Corequisite: 3880. [3-6] (No AXLE credit)

SOC4961 - Seminars in Selected Topics
Course Description

May be repeated for a total of 6 credits if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3; maximum of 6 credits total for all semesters of 4961] (No AXLE credit)

SOC4981 - Honors Research
Course Description

Research and writing supervised by department staff culminating in the Senior Honors Thesis. Work consists of both background reading and active research. May be repeated for a total of 12 credits if there is no duplication in topic, but students may earn only up to 6 credits per semester of enrollment. Open only to honors candidates. Prerequisite or corequisite: 3002. [3-6; maximum of 12 credits total for all semesters of 4981] (No AXLE credit)

Spanish

SPAN1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

SPAN1100 - Elementary Spanish I for True Beginners
Course Description

Designed exclusively for students with no previous exposure to Spanish. Development of basic listening, speaking, reading, and writing skills with Spanish-speaking culture through a communicative approach. Conducted primarily in Spanish. Not open to students with previous training in Spanish. Three hours of classroom instruction. Students continuing in Spanish take 1102. No credit for students who have already completed 1100 or have earned credit for a more advanced Spanish language course. Students wishing to repeat this course must take 1101 for repeat credit. [3] (No AXLE credit)

SPAN1101 - Elementary Spanish I
Course Description

Basic listening, speaking, reading, and writing skills. Communicative approach and exposure to aspects of Spanish-speaking cultures. Conducted entirely in Spanish. Three hours of classroom instruction. Intended for students with some study of the language at the elementary level. Entrance by departmental placement test. Serves as repeat credit for students who have completed 1100. No credit for students who have earned credit for a more advanced Spanish language course. [3] (No AXLE credit)

SPAN1102 - Elementary Spanish II
Course Description

Further development of listening, speaking, reading, and writing skills using a communicative approach. Exposure to aspects of Spanish-speaking culture. Conducted entirely in Spanish. Three hours of classroom instruction. Students continuing in Spanish take 2201. No credit for students who have earned credit for a more advanced Spanish language course. Prerequisite: 1100 or 1101. [3] (INT)

SPAN1103 - Intensive Elementary Spanish
Course Description

A communicative approach to reading, writing, listening, and speaking for students who have studied one to three years of Spanish. Rigorous review of elementary Spanish through three hours of class instruction. Departmental Spanish placement exam score of 275-364. Students continuing in Spanish take 2201. No credit for students who have earned credit for 1100, 1101, or 1102. No credit for students who have earned credit for a more advanced Spanish language course. [3] (INT)

SPAN1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

SPAN2201 - Intermediate Spanish I
Course Description

Development of intermediate linguistic competence in Spanish using a communicative approach. Study of cultures of Spanish-speaking countries by incorporating authentic materials. Three hours of classroom instruction. Intended for students who have earned credit for 1102 or 1103 or in consultation with the placement test scores on departmental website. No credit for students who have earned credit for a more advanced Spanish language course. [3] (INT)

SPAN2202 - Intermediate Spanish II
Course Description

Development of intermediate linguistic competence in Spanish using a communicative approach. Study of cultures of Spanish-speaking countries by incorporating authentic materials. Three hours of classroom instruction. Intended for students who have earned credit for SPAN2201. No credit for students who have earned credit for a more advanced Spanish language course. [3] (INT)

SPAN2203 - Intermediate Spanish
Course Description

Development of intermediate linguistic competence in Spanish (listening, speaking, reading, and writing) using a communicative approach. Study of cultures of Spanish-speaking countries by incorporating authentic materials. Four hours of classroom instruction plus one hour of independent research activities. Intended for students who have earned credit for 1102 or 1103 or have a departmental placement score of 365-409. No credit for students who have earned credit for a more advanced Spanish language course. [5] (INT)

SPAN2204 - Intensive Intermediate Spanish
Course Description

Development of intermediate linguistic competence in Spanish using a communicative approach. Study of cultures of Spanish-speaking countries by incorporating authentic materials. Three hours of classroom instruction. Intended for students with the indicated placement test scores on departmental website. Not open to students who have completed 2201 or 2202. No credit for students who have earned credit for a more advanced Spanish language course. [3] (INT)

SPAN2780 - Intensive Spanish
Course Description

A one-month intensive course in the Spanish language, meeting before regular classes begin. Emphasis is placed on conversation, reading, composition, and grammar. Offered only in the Vanderbilt in Spain program. [3] (INT)

SPAN2990 - Images of the Feminine in Spanish Cinema
Course Description

Spanish national cinema from the death of Francisco Franco to the present. Stories written, directed, and told by men about women. Taught in English with subtitled films. [3] (P)

SPAN2995 - Contemporary Latin American Prose Fiction in English Translation
Course Description

Themes and techniques of the contemporary novel, novella, and short story written by both men and women in Spanish America and Brazil. No credit for graduate students in Spanish or Portuguese. [3] (HCA)

SPAN3290 - Introduction to Spanish for the Professions
Course Description

Fifth semester Spanish language course. Recognizing and appreciating cultural diversity within professional environs. Intended for students who have completed 2202 or 2204 or by placement test score. [3] (INT)

SPAN3301W - Intermediate Spanish Writing
Course Description

Development of abilities in composition tasks related to expository writing. Focus on rhetorical techniques for organizing information, vocabulary abilities, and emphasis on collaborative work. Students write several short papers and a final long paper. Intended for students who have earned credit for 2202, or 2203 (prior to Fall 2021), or 2204, or have a departmental Spanish placement exam score of 460 or higher. [3] (INT)

SPAN3302 - Spanish for Oral Communication through Cultural Topics
Course Description

Development of speaking skills through the study of Spanish and Hispanic culture, and Spanish and Spanish-American current affairs. Texts drawn from contemporary articles, short stories, TV news, documentaries, and Web materials. Different registers of spoken Spanish. The development of effective strategies for oral communication. Prerequisite: 3290 or 3301W. Students with advanced oral skills will be placed in a higher level course. [3] (INT)

SPAN3303 - Introduction to Spanish and Spanish American Literature
Course Description

Critical reading and methods of literary analysis. Selections cover all genres in several periods. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302. [3] (HCA)

SPAN3304 - Contemporary Issues in the Spanish-Speaking World
Course Description

Cultural phenomena in economics, politics, health care, law, popular music, family, and cuisine. Professional proficiency and cultural literacy through four primary themes: movement, power, health, and intimacy. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302. [3] (INT)

SPAN3310W - Spanish for Heritage Speakers
Course Description

Advanced-level Spanish writing skills for academic and professional contexts. For heritage speakers of Spanish who have a personal, familial, or community connection to Spanish but received the majority of their formal education in English. [3] (INT)

SPAN3320 - Introduction to Hispanic Cultural Studies
Course Description

An examination of contemporary Hispanic culture through a variety of media (newspapers, magazines, comics, Web sites), arts, and entertainment. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302. Not open to students who have studied abroad. [3] (INT)

SPAN3325 - The Way of Saint James
Course Description

Origins and development of the Way of Saint James, or Camino de Santiago, through an examination of literature, art, history, and cultural and religious issues. Contributions from the cult of Saint James and the Way to Spanish national identity. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302. [3] (HCA)

SPAN3330 - Cultural Studies in the Andes
Course Description

Contemporary Andean culture through the lenses of anthropology and archaeology. Popular and elite artistic productions, cultural syncretism, and festive culture. Gender and society. Emphasis on hands-on learning on site. Locations include Lima, Cuzco, and Machu Picchu. Maymester only. Prerequisite: 3301W and 3302. [3] (INT)

SPAN3333 - Special Offerings
Course Description

Topics vary. [3]

SPAN3340 - Advanced Conversation
Course Description

An intercultural approach contrasting Hispanic and American perspectives. Discussions and oral presentations on contemporary issues. For students with a high level of oral proficiency, especially those returning from a semester abroad. Offered on a graded basis only. Prerequisite: 3302. [3] (INT)

SPAN3345 - Spanish in Business and the Global Economy
Course Description

Cultural competency in terminology related to the global economy, management, banking and accounting, human resources, marketing, finance, imports and exports. Economies of the Spanish speaking world and current economic realities through business case study analysis, individual research, and entrepreneurial engagement. Offered on a graded basis only. Prerequisite: 3301W and 3302. [3] (INT)

SPAN3350 - Spanish for the Legal Profession
Course Description

Advanced conversation course emphasizing specialized Spanish legal terminology. The development of linguistic proficiency and cultural competency. Vocabulary acquisition, grammar review, translation practice, oral presentations, and written papers. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. [3] (INT)

SPAN3355 - Advanced Conversation through Cultural Issues in Film
Course Description

Spanish and Latin American films as the basis for discussion and analysis of linguistic, historic, cultural, and social issues. Offered on a graded basis only. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. [3] (INT)

SPAN3360 - Spanish Civilization
Course Description

The development of Spanish culture from the Middle Ages to the present in the context of Western civilization. Discussion of historical background, literary and artistic trends, and political and socioeconomic patterns. Not open to students who have attended Vanderbilt in Spain. Prerequisite: 3301W and 3302. [3] (INT)

SPAN3365 - Film and Recent Cultural Trends in Spain
Course Description

The cinema and Spanish cultural evolution during and after the Franco dictatorship. Prerequisite: 3303. [3] (INT)

SPAN3370 - Spanish American Civilization
Course Description

The development of Spanish American culture from colonial times to the present; discussion of basic institutions, political and socioeconomic patterns, education, the arts, and folklore. Prerequisite: 3301W and 3302. [3] (INT)

SPAN3375 - Film and Culture in Latin America
Course Description

Latin American cinema in historical perspective. Screenings, critical readings, and supplementary texts. Prerequisite: 3303. [3] (P)

SPAN3380 - The Spanish Language
Course Description

An advanced grammar course with emphasis on problem constructions, stylistics, and composition. Offered only in the Vanderbilt in Spain program. [3] (INT)

SPAN3385 - Creative Writing and Advanced Grammar
Course Description

Development of writing skills through advanced grammatical concepts, vocabulary, and writing techniques and the production of short stories, essays, poems, and other forms of textual discourse. Prerequisite: 3303. [3] (INT)

SPAN3830 - Spanish, Health and Society
Course Description

Advanced linguistic and cultural tools for the study of human anatomy, and chronic and common diseases (prevention, detection, symptoms and diagnostic tests, treatment and follow-up). Comprehensive analysis of the current state of health of the Latino population. Physical and mental well-being, public policy, and health care in the United States. Service-learning component in the Latinx community, Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. [3] (INT)

SPAN3835 - Latino Immigration Experience
Course Description

Literature and film that depict the immigration and assimilation experiences of the main Latino groups. Service to the Latino community integral part of course work. Prerequisite: 3303. [3] (P)

SPAN3840 - Undocumented in the U.S.
Course Description

Nashville-area Latinx community. Challenges faced by refugees, asylum seekers, and those living undocumented in the United States. Rhetoric surrounding the permeability of the border, and the dangerous journeys made by asylum and opportunity seekers. U.S. foreign intervention; historical and current immigration polemics. Service-learning course. Offered on a graded basis only. Prerequisite: 3303. [3] (P)

SPAN3850 - Independent Study
Course Description

Designed primarily for majors. Projects are arranged with individual professors and must be approved by the director of undergraduate studies before the close of registration in the semester of the project. May be repeated for a total of 12 credits over a four semester period, but students may earn only up to 3 credits per semester of enrollment. [1-3; maximum of 12 credits total for fours semesters of SPAN 3850] (No AXLE credit)

SPAN3880 - Internship Training
Course Description

Under faculty supervision, students gain experience in public or private organizations and complete research and readings. Offered on a pass/fail basis only and must be taken concurrently with 3881. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. Corequisite: 3881. [1] (No AXLE credit)

SPAN3881 - Internship Readings and Research
Course Description

Under faculty supervision, students gain experience in public or private organizations, and complete research and readings. Must be taken concurrently with 3880. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. Corequisite: 3880. [3] (No AXLE credit)

SPAN3891 - Special Topics in Hispanic Culture
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. [3] (No AXLE credit)

SPAN3892 - Special Topics in Spanish Language and Linguistics
Course Description

May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. [3] (No AXLE credit)

SPAN3893 - Special Topics in Hispanic Literature
Course Description

Prerequisite: 3303. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

SPAN4250 - Imagine and Write: Creative Writing in Spanish
Course Description

Writing in different styles, genres, and registers: poem, newspaper article, fairy tale, dramatic monologue/dialogue, song lyric, film script, love letter, and journal entry. Offered on a graded basis only. Not open to students who have completed Span 3385. Prerequisite: 3303. [3] (HCA)

SPAN4300 - Introduction to Spanish Linguistics
Course Description

Major linguistic subsystems of the Spanish language. Morphology, syntax, phonetics and phonology. Semantics and pragmatics, dialectology, and sociolinguistics. No previous knowledge of linguistics required. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4310 - Translation and Interpretation
Course Description

Theory and practice of translation and interpretation, both from English to Spanish and Spanish to English. Practical knowledge of the basic modes of translation (direct and oblique) and interpretation (sight, consecutive, and simultaneous). Emphasis on the fundamentals of translation in legal, medical, literary, business, commercial, media, sports, and other fields. Prerequisite: one of SPAN 3290 or 3301W or 3310W; and 3302; and one of 3303 or 3304. [3] (SBS)

SPAN4315 - Contrastive Analysis of Spanish and English
Course Description

A comparison of the phonological, morphological, and syntactical structures of Spanish and English to demonstrate the similarities and differences between the linguistic systems of these two languages. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4320 - The Sounds of Spanish
Course Description

Analysis of the production, nature, and systemic function of the sounds of the Spanish language, as well as of problems frequently experienced by non-native speakers. Both standard and dialectal features of Spanish are examined. Offered on a graded basis only. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4325 - Language Variation in the Hispanic World
Course Description

Formation, general characteristics, distinctive features, and geographical extension of the principal dialectal regions of Spain and Spanish America. Both historical and modern dialects are considered. Emphasis on non-standard dialectal varieties of Spanish. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4330 - Words and Stems
Course Description

A morphological presentation of the structural principles governing the creation of noun, verb, adjective, and adverb along with an overview of the formation of the underlying stems. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4335 - Grammatical Structure of Spanish
Course Description

An introduction to the principles of modern Spanish morphology (word formation) and syntax (phrase structure and usage) through an analysis of the native speaker's organization of reality and use of language to reflect and to express that organization. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4340 - History of the Spanish Language
Course Description

Origins and evolution of the Spanish (Castilian) language. Emphasis on the phonological and morphological development of Spanish within historical and cultural contexts of the Iberian Peninsula. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4345 - The Languages of Spain
Course Description

Origins, development, and the contemporary sociolinguistic situation of the principal languages and dialects of Spain, including Castilian, Catalan, Galician, and Basque. Prerequisite: 3301W and 3302. [3] (SBS)

SPAN4350 - Communicating Across Cultures
Course Description

Relationships among discourse, identity, and culture. Linguistic construction of ethnicity and gender. Latin American and U.S. Latino ways of speaking. Prerequisite: 3303. [3] (SBS)

SPAN4355 - Spanish in Society
Course Description

Language variation and linguistic change. Regional, socioeconomic, gendered, and ethnic differences in spoken Spanish. Language as it shapes the identities of speakers. Language use in social contexts with comparisons to English. Prerequisite: 3303. [3] (SBS)

SPAN4360 - Discourse Analysis
Course Description

Linguistic pragmatics. Speech acts in conversation as patterned activity rather than unpredictable behavior. Implications, presuppositions, discourse markers, and other pragmatic units. Comparisons with English. Prerequisite: 3303. [3] (SBS)

SPAN4400 - The Origins of Spanish Literature
Course Description

From its beginnings to the Renaissance; the creation of a social order and a cultural tradition. Close study of three literary landmarks - Poema del Cid, Libro de Buen Amor, La Celestina - and other prose and poetry selections. Prerequisite: 3303. [3] (HCA)

SPAN4405 - Literature of the Spanish Golden Age
Course Description

Representative works from early modern Spain, including poetry, prose, and drama of the Renaissance and Baroque periods. Prerequisite: 3303. [3] (HCA)

SPAN4410 - Spanish Literature from the Enlightenment to 1900
Course Description

Essays and Neoclassic literature. Romanticism, Realism, and Naturalism. Representative works and authors from all genres. Prerequisite: 3303. [3] (HCA)

SPAN4415 - Spanish Literature from 1900 to the Present
Course Description

Representative authors and works. Prerequisite: 3303. [3] (HCA)

SPAN4420 - Spanish American Literature from the Conquest to 1900
Course Description

Development of all forms from colonial times to the end of the 19th century. Patterns of interaction of Amerindian, African, and European cultural traditions. Unity and diversity of Spanish American literature. Prerequisite: 3303. [3] (HCA)

SPAN4425 - Spanish American Literature from 1900 to the Present
Course Description

The works of Neruda, Borges, Paz, Garcia M√°rquez and others. Prerequisite: 3303. [3] (HCA)

SPAN4430 - Contemporary Mexican Literature and Culture
Course Description

Twentieth- and twenty-first-century-Mexican history through literature, the visual arts, film, and performance. Taught in Spanish. Offered on a graded basis only. Prerequisite: 3303. [3] (INT)

SPAN4440 - Development of the Short Story
Course Description

From early manifestations in Spain through its current forms in Spain and Spanish America. Prerequisite: 3303. [3] (HCA)

SPAN4445 - Development of the Novel
Course Description

From the seventeenth century through Realism and Naturalism in Spain and Spanish America. Prerequisite: 3303. [3] (HCA)

SPAN4450 - The Contemporary Novel
Course Description

New forms in the twentieth-century novel in Spain and Spanish America. Prerequisite: 3303. [3] (HCA)

SPAN4455 - Development of Drama
Course Description

Spanish theatrical works from 1600 to 1900, including the Golden age comedia, neoclassicism, romanticism, and early realism in drama. Prerequisite: 3303. [3] (HCA)

SPAN4465 - The Theory and Practice of Drama
Course Description

Critical works and plays from different periods. Introduction to the principles of dramaturgy. Prerequisite: 3303. [3] (HCA)

SPAN4470 - Development of Lyric Poetry
Course Description

Popular and traditional forms; the sonnet and other Renaissance and Baroque classical forms. Romanticism. Prerequisite: 3303. [3] (HCA)

SPAN4475 - Contemporary Lyric Poetry
Course Description

From Modernism to the present in Spain and Spanish America. Prerequisite: 3303. [3] (HCA)

SPAN4500 - Critique of Technology: Perspectives from the Hispanic World
Course Description

Insights from modern literature and other arts reframing technology's role in culture. Popular works of social commentary from Latin American fiction writers and filmmakers. Offered on a graded basis only. Serves as repeat credit for SPAN 3893 section 01 in Spring 2023, Spring 2022, or Spring 2021. Prerequisite: 3303. [3] (HCA)

SPAN4550 - The Theory and Practice of Literary Translation
Course Description

Theoretical approaches and their consequences for the interpretation of translated texts. Practical application of these principles in the translation of both Spanish and Portuguese texts into English. Taught in Spanish. Written work in Spanish or Portuguese. Prerequisite: 3303. [3] (HCA)

SPAN4620 - Love and Honor in Medieval and Golden Age Literature
Course Description

The evolution of the key themes of love and honor in works from various genres of medieval and Golden Age Spanish literature with special attention to sociohistorical context. Prerequisite: 3303. [3] (HCA)

SPAN4640 - Don Quixote
Course Description

Directed reading and intensive study of the novel. Prerequisite: 3303. [3] (HCA)

SPAN4670 - Spanish Realism
Course Description

Methods of, implications to, and pitfalls of creating realistic characters in nineteenth-century Spanish novels. Prerequisite 3303. [3] (HCA)

SPAN4690 - Alterity and Migration in Spain
Course Description

Historical and literary texts about nationalism and cultural difference. Representations of contact with Africa, the Americas, and Asia; regional identities; immigration; gender and racial issues. Prerequisite: 3303. [3] (P)

SPAN4700 - Feminisms and Literature
Course Description

Socio-historical context of "women's lit" and the literary canon of the twentieth century. High art and popular literature and culture through the lens of today's Latin American and intersectional feminisms. Prerequisite SPAN 3303. [3] (P)

SPAN4720 - Literary Genres and National Identities in Latin America
Course Description

A comparative approach to the rise of the national literary traditions from independence to the latter half of the twentieth century. Indigenist novels, abolitionist narratives, and gaucho poetry by colonial figures, including African slaves, indigenous peoples, and Argentine Gauchos. Prerequisite: 3303. [3] (P)

SPAN4725 - Jungle Narratives in Latin America
Course Description

From the colonial period to the present. Evolution of the representation of the jungle. Prerequisite: 3303. [3] (HCA)

SPAN4730 - Modern Latin American Poetry
Course Description

Development of poetry in Spanish America and Brazil during the twentieth century. Major poets and movements, including both Spanish American Modernismo and Brazilian Modernismo. Poetry as a genre; composition and discussion of students' poetry. Taught in Spanish. Prerequisite: 3303. [3] (HCA)

SPAN4740 - Spanish-American Literature of the Boom Era
Course Description

The Boom novel of the 1960s: Carlos Fuentes' La muerte de Artemio Cruz, Julio Cort√°zar's Rayuela, Mario Vargas Llosa's La ciudad y los perros, Guillermo Cabrera Infante's Tres tristes tigres, and Gabriel Garc√¨a M√°rquez's Cien a√±os de soledad. Prerequisite: 3303. [3] (HCA)

SPAN4741 - Spanish-American Literature of the Post-Boom Era
Course Description

The post-Boom novel from the 1970s to the present; analysis of related films. Manuel Muig's Boquitas pintadas, Me llamo Rigoberta Mench√∫, Laura Esquivel's Coma agua para chocolate, Reinaldo Arena's Viaje a La Habana, and Daisey Rubiera Castillo's Reyita, sencillamente. Prerequisite: 3303. [3] (P)

SPAN4750 - Afro-Hispanic Literature
Course Description

From nineteenth-century slave narrative to modern writers such as Miguel Barnet, Alejo Carpentier, and Quince Duncan. Prerequisite: 3303. [3] (P)

SPAN4755 - Latina and Latin American Women Writers
Course Description

Contemporary writing of women in Latin America and of Latinas in the United States. Representation of sexuality and the maternal body. Prerequisite: 3303. [3] (P)

SPAN4760 - Literature and Medicine
Course Description

Modern intersections of literature and medicine in Latin America. From the social hygiene literature of the nineteenth century to the autobiographical disease narrative of the late twentieth century. Prerequisite 3303. [3] (P)

SPAN4765 - Latin American Fiestas: Mexico, The Andes, and the Caribbean
Course Description

Comparative analysis of the celebration phenomenon as a stark contrast to everyday reality. Festive integration of Amerindian, African, and European legacies embedded in the identity of three Latin American regions. Colonial and contemporary texts, paintings, and film. Serves as repeat credit for SPAN 3893 Section 01 in Fall 2017. Prerequisite: 3303. [3] (P)

SPAN4810 - Images of the City
Course Description

Literary representations of cityscapes in Spain and Latin America. Prerequisite: 3303. [3] (HCA)

SPAN4980 - Undergraduate Seminar
Course Description

Close contextual readings of major Hispanic literary texts through selected critical approaches. Open to junior and senior majors in Spanish; required of candidates for honors. Prerequisite: 3303. [3] (HCA)

SPAN4998 - Senior Honors Thesis
Course Description

[3] (No AXLE credit)

SPAN4999 - Senior Honors Thesis
Course Description

[3] (No AXLE credit)

Special Education

SPED1001 - Commons iSeminar
Course Description

Commons Seminar, a 1-hour small seminar experience, open to first-year students. Students and faculty will collaboratively explore a specialized topic in depth in this university-wide seminar sponsored by The Ingram Commons. General Elective credit only. [1]

SPED1115 - Freshman Seminar
Course Description

Selected Topics for first-year students [3]

SPED1175 - Freshmen Seminar
Course Description

Provides students with an overview of the undergraduate program in special education. Faculty members from each program area share their experiences and research projects. Students complete a 15-hour service project with individuals with disabilities in the community. [1]

SPED1210 - Introduction to Exceptionality
Course Description

Examines issues and trends in special education and overviews the characteristics of persons with disabilities. Covers essential issues and theories relating to special education and the development of exceptional persons with special attention to normal and atypical human development. Multi-cultural, humanistic, and legal issues are addressed. [3]

SPED2110 - Introduction to Teaching Students with Disabilities
Course Description

This course consists of two major components. The first component focuses on special education law, writing IEPs, developing lesson plans, effective teaching behaviors, progress monitoring, and methods for grouping students. The second component provides an overview of instructional models that have empirical support for their effectiveness in teaching students with disabilities. [3]

SPED2160 - Cultural Diversity in American Education
Course Description

(Also listed as EDUC 2160) Focuses on cultural diversity and the ways in which it has been defined and treated in the American educational system. An interdisciplinary perspective informs the course, with particular attention to history, sociology, psychology, anthropology, and educational literature. [3]

SPED2310 - Managing Academic and Social Behavior
Course Description

This course is designed to prepare students to manage classroom behavior using behavioral principles. Definition and measurement of behavior, reinforcement strategies, systematic program development, basic formats for classroom instruction, and techniques for monitoring student progress are presented. Emphasizes procedures for increasing academic and socially appropriate behavior through classroom activities. Students apply their skills in classroom settings. Prerequisite: SPED 1210. Corequisite: 1 hour of SPEDH 3871 or SPEDS 3871. [3]

SPED3332 - High Poverty Youth: Improving Outcomes
Course Description

(Also listed as HOD 3332) Youth from high poverty backgrounds often are placed at risk for a host of unfavorable outcomes including academic failure, school dropout, drug abuse, unemployment, and incarceration. In this class, we will be working with schools and community agencies in Nashville to improve outcomes for youth living in high-poverty neighborhoods. We will have class meetings weekly as well as ongoing field-based experiences. Field work will include mentoring, tutoring, or providing job readiness training to youth in neighborhood community centers or in students' high schools. [3]

SPED3770 - Accommodating Academic Diversity in the Classroom
Course Description

Explores the importance and difficulty of teaching heterogeneously grouped students in mainstream classrooms and offers specific instructional strategies for doing so effectively. Focuses explicitly and exclusively on methods to help classroom teachers instruct and manage the behavior of a broad range of students-students with and without disabilities at multiple points along the achievement continuum. [3]

SPED3850 - Independent Study in Special Education
Course Description

Semi-independent study of selected topics in special education. May be repeated. Consent of instructor required. [1-3]

SPED3890 - Special Topics in Special Education
Course Description

Study of selected topics or issues related to special education such as teaching culturally or linguistically diverse learners, accommodating academic diversity in classrooms, or augmentative communication techniques. May be repeated for credit with change in topic. [1-3]

SPED3980 - Honors Seminar in Special Education
Course Description

This seminar is completed as part of the Honors Program in Special Education, which is designed to allow students experiences working with a faculty member on research activities. The course is taken during the junior year concurrent with engagement in research with a faculty mentor's team for at least five hours per week. During weekly meetings, students will be introduced to various research methodologies, read and discuss articles and studies that use a variety of research designs, examine and share their roles on a faculty mentor's team, and ultimately, complete and share an Honors Project at the end of the spring semester. Acceptance into the Honors Program and permission of the instructor are required. [0-1]

SPED4950 - Student Teaching Seminar
Course Description

Students complete assignments and structured activities that demonstrate their ability to apply knowledge, skills, and dispositions acquired during the core courses and field-based experiences of the special education major. The weekly seminar discussion focuses on understanding situations and solving problems that naturally occur during the student teaching experience. A $300.00 Teacher Performance Assessment fee is associated with this course. Must co-register for either SPED 4954 or 4951. [3]

SPED4951 - Student Teaching in Special Education
Course Description

Observation, participation, and classroom teaching for undergraduate students in any area of exceptionality. Placements are dependent on license areas. Prerequisite: Admission to student teaching. Corequisite: SPED 4950. [9]

SPED4954 - Student Teaching in Special Education and Education
Course Description

(Also listed as EDUC 4954) Observation, participation, and classroom teaching for undergraduate students in any area of education combined with any area of exceptionality. Placements are dependent on license and endorsement areas. Prerequisite: Admission to student teaching. Corequisite: SPED 4950. [9]

Special Education: High Incidence

SPEDH3308 - Understanding Students with Severe and Persistent Academic and Behavior Difficulties
Course Description

This course has three main components. The first component will focus on the cognitive, perceptual, language, academic, and social/emotional characteristics and needs of students with severe and persistent academic and behavior difficulties. The second component will focus on special education law and developing IEPs. The final component will focus on developing lesson plans and general strategies for teaching students with severe and persistent academic and behavior difficulties. Prerequisite: SPED 1210. [3]

SPEDH3318 - Assessment for Students with Severe and Persistent Academic and Behavior Difficulties
Course Description

This course focuses on the diagnosis and evaluation of students with severe and persistent academic and behavior difficulties using a variety of developmentally appropriate curriculum based measurements, criterion-referenced, and norm-referenced tests in the academic and vocational subject areas. Emphasis is on the interpretation of information from assessments into Individualized Education Program annual goals and objectives and instructional programming strategies. Specific considerations is given to the reporting of assessment information to parents, teachers and other support personnel to determine appropriate placement levels within the continuum of services. Prerequisite: SPED 1210. Co-requisite: 1 hour of SPED 3871. [3]

SPEDH3328 - Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties: K-8
Course Description

This methodological course consists of two components. The first focuses on the possible causes for disabilities in the area of mathematics and assessment of those disabilities. The second emphasizes explicit teaching procedures, direct instruction, and instructional design principles that apply to teaching mathematics in grades K-8. Prerequisite: SPED 1210 and 3308. [3]

SPEDH3338 - Teaching Reading to Students with Severe and Persistent Academic and Behavior Difficulties
Course Description

Presents empirically validated instructional procedures to address the reading deficits of students with severe and persistent academic and behavior difficulties. Integration of explicit teaching procedures, direct instruction, and instructional design principles that apply to a range of academic domains are emphasized. Proficiency in the development of assessment profiles, instructional lessons, monitoring of progress through curriculum-based measures and data-based decision making is required. Candidates apply skills in classroom settings. Prerequisite: SPED 1210 and 3308. Co-requisite: 1 hour of SPED 3871. [3]

SPEDH3348 - Language and Learning
Course Description

This course examines writing and language development, the written and language difficulties encountered by students with high incidence disabilities, assessment and instruction of writing and language difficulties, as well as cultural diversity and writing and language differences. Not open to students who have earned credit for SPEDS 2430 without permission. Total credit for this course and SPEDS 2430 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3]

SPEDH3358 - Advanced Reading Methods for Students with Severe and Persistent Academic and Behavior Difficulties
Course Description

This course focuses on advanced methods of assessment and instruction methods related to teaching reading. Candidates in this course will gain competency in using formative assessments to identify students with severe and persistent reading difficulties, as well as expertise in and knowledge of teaching approaches and curricula for improving decoding, vocabulary, fluency, and comprehension abilities. Prerequisite: SPED 1210 and 3338. Co-requisite: 1 hour of SPED 3871. [3]

SPEDH3368 - Teaching Middle School Students with Severe and Persistent Academic and Behavior Difficulties
Course Description

This middle school course for teaching students with severe and persistent academic and behavior difficulties has two components. The first focuses on teaching English Language Arts across the curriculum at the middle school, including reading literature and informational text, language development, writing, speaking, and listening. The second component focuses on skills needed for collaborating with other school personnel and preparing students to transition to high school. [3]

SPEDH3378 - Teaching High School Students with Severe and Persistent Academic and Behavior Difficulties
Course Description

This is an introductory course in teaching students with severe and persistent academic and behavior problems at the high school setting. The first half of the course covers models of teaching special education at the secondary level, transition-related legislation, post-school outcomes of high school students with disabilities, and dropout prevention within a context of cultural diversity. The second half focuses on empirically-based secondary special education strategies, including academic/study skills and accommodations, social skills, self-determination, ITP development, and career education and employment. [3]

SPEDH3388 - Teaching Mathematics to Students with Severe and Persistent Academic and Behavior Difficulties 6-12
Course Description

This mathematics methods course for teaching 6-12th grade students with severe and persistent academic and behavior difficulties consist of two major components. The first component focuses on the possible causes of math disabilities and assessment of math disabilities. The second component emphasizes instructional design principles, explicit teaching procedures, interventions, and mathematics pedagogy at the secondary level. [3]

SPEDH3771 - Practicum: Accommodating Academic Diversity in the Classroom
Course Description

This practicum is designed to allow students to work with both special educators and general educators regarding the needs of students with disabilities. Emphasis is placed on accessing the general education curriculum. Corequisite: SPED 3770 or 3777. [5]

SPEDH3778 - School and Classroom Supports Teaching Students Academic Behavior Difficulties
Course Description

This course focuses on practices to support teaching and learning of students with severe and persistent academic and behavior difficulties. Core topics include the following: (1) Effective classroom management to enhance appropriate behavior, prevent problem behavior, and support students at-risk for and with behavior difficulties; (2) Research, efficacy and models of co-teaching; (3) Collaboration with colleagues and families; (4) Technology use to support instruction and accessibility; and (5) Ethical professional behavior. [3]

SPEDH3871 - Field Work in Special Education for Mild/Moderate Disabilities
Course Description

Field-based application of correlated course content to classroom strategies. Planning, implementation, and evaluating instructional procedures for students with mild to moderate disabilities. May be repeated. Prerequisites: SPED 1210 [1-3].

Special Education: Severe

SPEDS2120 - Issues in Family Intervention
Course Description

An overview of different approaches, current issues, and problems involved in working with and supporting families. Emphasis is placed on how a child with disabilities affects and is affected by parents, siblings, the extended family, and the community. Strategies for effective communication for the purpose of information sharing and collaborative planning with families are provided. [3]

SPEDS2430 - Introduction to Language and Communication
Course Description

Overview of normal language development, psycholinguistic terminology and research, speech and language disorders and their remediation, and specific intervention procedures for the development of speech and language skills in children and youth. Not open to students who have earned credit for SPEDH 3348 without permission. Total credit for this course and SPEDH 3348 will not exceed 3 credit hours. Credit hours reduced from second course taken (or from test or transfer credit) as appropriate. [3]

SPEDS2450 - Augmentative and Alternative Communication
Course Description

This course is designed to provide an overview of the field of augmentative and alternative communication (AAC) for use with young children and school-age children with severe disabilities. Specifically, the course will provide an overview of the theories that are important to the understanding of appropriate uses of AAC systems, and the course will provide information about the efficacy of these systems with students with severe disabilities. Topics will include guidelines for selecting, implementing, using, and monitoring the use of AAC systems. [3]

SPEDS3300 - Methods of Instruction for Students with Autism, Intellectual, and Multiple Disabilities
Course Description

Provides information on the nature and needs of individuals with severe disabilities and the roles of federal, state, and local agencies in providing services to this population. Emphasis is placed on strategies for the acquisition and generalized use of age appropriate functional skills in natural community-based settings. Methods for developing and implementing individualized programming across specialized curricular areas such as communicative, cognitive, functional academic, motor, domestic living/self-help, recreation/leisure, vocational and general community living skills. Must co-register for SPEDS 3871. [3]

SPEDS3312 - Procedures in Transition to Adult Life
Course Description

(Also listed as HODC 3312) Overview of history, legislation, and practice in the areas of community and employment integration for persons with disabilities. Emphasis on various strategies for promoting a successful transition from school to life. Students are required to develop instructional plans for integration within the community. Students will apply their skills in community or classroom settings. Prerequisite: SPED 2310. Corequisite: SPEDS 3871. [3]

SPEDS3330 - Characteristics of Students with Low Incidence Disabilities
Course Description

This course provides information on the history, nature, characteristics, and needs of students with exceptionalities. Neurological impairments resulting in motor dysfunction, sensory impairments, and the combination of these are discussed. Information is provided on the physical, medical, and educational management of students with severe, profound, and multiple disabilities in educational settings. Corequisite: SPEDS 3871. [3]

SPEDS3350 - Access to General Education and Teaching Functional Academics
Course Description

The course provides in-depth information on teaching students with severe disabilities. Emphasis is on strategies for the acquisition and generalized use of age-appropriate functional skills in natural school and community-based settings. Methods for developing and implementing individualized programming across specialized curricular areas such as communicative, cognitive, functional academic, motor, domestic living/self-help, recreation/leisure, and general community living skills. Current research evidence to support effective practices is stressed. [3]

SPEDS3600 - Teaching Reading to Students with Severe Disabilities
Course Description

This course will present empirically validated instructional procedures to address the academic deficits of students with severe disabilities across principle domains of reading instruction including oral language, concepts of print, phonological awareness, phonics, vocabulary, comprehension, writing, and content area literacy. Includes integration of explicit teaching procedures, direct instruction, and instructional design principles that apply to a range of academic domains. Proficiency in the development of assessment profiles, instructional lessons, monitoring of progress through curriculum-based measures and data-based decision making is required. Students will apply their skills in classroom settings. Prerequisites: SPED 1210 and SPEDS 3330. Corequisite: SPEDS 3300. [3]

SPEDS3661 - Advanced Fieldwork in Autism, Intellectual, and Multiple Disabilities
Course Description

Students will participate in field-work in special education, specifically in classrooms for students with severe exceptionalities and/or autism. Students will complete activities tied to a fieldwork in special education seminar. This course may be repeated. Corequisite: SPEDS 3667. Prerequisites SPED 3871 both fall and spring. [3]

SPEDS3667 - Seminar in Teaching Students with Autism, Intellectual, and Multiple Disabilities
Course Description

Seminar for undergraduate students related to their field-work in local classrooms with severe disabilities and/or autism. Students will complete various assignments and implement them in a classroom setting. This course may be used to satisfy the Peabody College writing requirement. Prerequisites: SPED 1210, 2120, 2450, SPEDS 3300, 3330, 3312, 3350. Corequisite: SPEDS 3661. [3]

SPEDS3871 - Fieldwork in Autism, Intellectual, and Multiple Disabilities
Course Description

Field-based application of correlated course content to classroom strategies. Planning, implementation, and evaluating instructional procedures for students with severe disabilities. May be repeated. Prerequisites: SPED 1210, SPED 2110, SPED 2430. Fall semester Corequisites: SPED 2310, and SPEDS 3330. Spring Semester Corequisites: SPED 2450, SPEDS 3312, and SPED 3328. [1-3].

Special Education: Vision

SPEDV3150 - Introduction to Students with Visual Impairments and Deafblindness
Course Description

Students with visual impairments, including blindness, low vision, and deafblindness, represent a diverse population. This course provides an introductory overview on individuals with visual impairments including issues and trends around their education and development from early childhood through young adulthood. Students in the class will learn how to collaborate on multidisciplinary teams to support students with visual impairments across learning environments. Considerations for creating accessible assessments, instruction, and interventions for students with visual impairments, including students with additional disabilities, will be examined. At the end of this course, students will have a solid understanding of supports and special considerations for students with visual impairments and deafblindness. [3]

SPEDV3305 - Medical and Educational Implications of Visual Impairments
Course Description

Assessment of sensory function, including integration of information from medical and rehabilitation vision care specialists, as basis for planning, implementing, and monitoring intervention/education for learners with visual impairments, with emphasis on specific visual disorders, functional use of senses, assistive technology for enhancing visual function (i.e., optical and nonoptical devices), and family/child characteristics. Linking structure/function of visual system to most prevalent visual conditions, identifying implications of conditions for development and learning, and identifying appropriate accommodations for optimizing visual function. Roles of teachers of students with visual impairments; medical, educational, and rehabilitation professionals; families; and other team members in optimizing outcomes for students with visual impairments. Content provided through lectures, demonstrations, observations, laboratory dissections, and integrated fieldwork. [3]

SPEDV3315 - Issues & Trends for Teaching Students with Visual Impairments
Course Description

Introduction to the literature, history, principles, programs, practices, and problems in the field of visual impairment/blindness. Role of teacher of students with visual impairments in providing access to the general core curriculum, providing instruction in the expanded core curriculum for students with visual impairments, and introduction to assistive technology. Using assessment and data driven decision making to guide intervention planning, implementation, and progress monitoring. Course content provided through lectures, demonstrations, observations, and integrated fieldwork. [3]

SPEDV3335 - Braille Reading and Writing
Course Description

This course is an introduction to literary braille code (Unified English Braille) and braille codes for mathematics. Students will learn to read and write braille. This course is specifically designed for future teachers of students with visual impairments. Consent of instructor required. [1]

SPEDV3345 - Communication and Literacy Skills for Students with Visual Impairments
Course Description

Promoting/teaching communication and literacy skills, including use of assistive technology for communication and literacy (augmentative communication devices, computer-assisted instruction, keyboarding skills, non-optical devices for enhancing reading and writing, etc.) for students with visual impairments, including those with multiple disabilities. Special emphasis on learning media assessments; assessment of communication and literacy skills for intervention planning, implementation, and program monitoring; accessibility and production of appropriate learning media. Course content provided through lectures, demonstrations, observations, and integrated fieldwork. [3]

SPEDV3355 - Orientation and Mobility for Teachers of Students with Visual Impairments
Course Description

Lectures, discussions, and simulated activities in teaching orientation, mobility concepts and skills to students with visual impairments. Impact of visual impairment on motor and cognitive development and strategies for promoting optimal development and learning, sensory use, and independent travel, including assistive technology. Taught by an orientation and mobility specialist. Course content provided through lectures, demonstrations, observations, and integrated fieldwork. [3]

SPEDV3385 - Educational Access and Collaboration for Students with Visual Impairments
Course Description

Advanced strategies for providing access to the general core curriculum and providing instruction in the expanded core curriculum for students with visual impairments, early intervention and family-centered practices, with particular emphasis on assistive technology and universal design for learning. Course content provided through lectures, demonstrations, observations, and integrated fieldwork. [3]

SPEDV3900 - Teaching Braille
Course Description

This course focuses on strategies for teaching braille to students with visual impairments, methods of braille production, and an introduction to advance braille codes teachers of students with visual impairments need to be familiar with. Students will read, write, and proofread braille; observe teachers as they teach braille codes to students with visual impairments; and acquire technology skills required to teach and produce braille to students with visual impairments. [2]

Swahili

SWAH1101 - Elementary Swahili I (UVA)
Course Description

Listening, speaking, reading and writing. Course taught at University of Virginia; Vanderbilt students participate through video conference and/or telepresence classroom. Offered on a graded basis only. [3] (No Axle Credit)

SWAH1102 - Elementary Swahili II (UVA)
Course Description

Offered on a graded basis only. Prerequisite: 1101. [3] (INT)

SWAH2201 - Intermediate Swahili I (UVA)
Course Description

Grammatical skills, speaking, and writing through a reading of Swahili texts. Course taught at University of Virginia; Vanderbilt students participate through video conference and/or telepresence classroom. Offered on a graded basis only. Prerequisite: 1102. [3] (INT)

SWAH2202 - Intermediate Swahili II (UVA)
Course Description

Offered on a graded basis only. Prerequisite: 2201. [3] (INT)

Theatre

THTR1001 - Commons iSeminar
Course Description

Topics vary. General Elective credit only. [1] (No AXLE credit)

THTR1101 - Theatre Production Practicum
Course Description

Hands-on participation in various production roles. [1-3] (No AXLE credit)

THTR1111 - First-Year Writing Seminar
Course Description

Independent learning and inquiry in an environment in which students can express knowledge and defend opinions through intensive class discussion, oral presentations, and written expression. May be repeated for credit once if there is no duplication of topic, but students may earn only up to 3 credits in any 1111 course per semester of enrollment. [3; maximum of 6 credits total for all semesters of 1111] (AXLE credit category varies by section)

THTR1611 - Fundamentals of Acting
Course Description

The role of the actor in the theatre with emphasis on artistic self-expression through improvisation and development of performance skills. Available on a graded basis only. [3] (HCA)

THTR1701 - Scenic and Costume Production Practicum
Course Description

Scenic and costume construction skills; production lab for THTR 1711. Offered on a graded basis only. Prerequisite or corequisite: THTR 1711. [1] (No AXLE credit)

THTR1711 - Scenery and Costume Production
Course Description

Contemporary concepts, methods, and practices employed in the planning and implementation of stage scenery and costumes. Communication, creative problem solving, and organizational management through research, lecture, and experiential learning. [3] (HCA)

THTR2201 - Ritual and World Performance
Course Description

Including festivals of ancient Greece, Rome, Medieval Europe, and Mesoamerica; Japanese Noh, Kabuki, and Bunraku; African dance and postcolonial theatre. [3] (INT)

THTR2202W - The European Stage
Course Description

Including the Italian Renaissance, French neoclassicism, English Restoration, German and French romanticism, and the modernist movements of realism, symbolism, Dada and futurism, expressionism, epic theatre, and absurdism. [3] (INT)

THTR2204 - The U.S. Stage
Course Description

Including British colonial and revolutionary drama; frontier theatre; melodrama; minstrelsy, vaudeville, burlesque, and the musical stage; pageantry and community theatre; postwar realism; African-American, Chicana/o, feminist, and Asian-American theatre movements. [3] (US)

THTR2206W - Cultural Identity and the American Musical
Course Description

Cultural analysis of musical theatre texts (book, music, and choreography) and production practices onstage and screen. Study of musical history, artistry, and cultural theory, including constructions of race, ethnicity, gender, and sexuality. [3] (US)

THTR2311W - Writing for the Stage and Screen
Course Description

Techniques for writing plays and screenplays with critical attention to dramatic themes and characterization. [3] (HCA)

THTR2651 - Play Direction
Course Description

Play direction as an aid to critical understanding and appreciation of the theatre. Development of techniques. Prerequisite: 1611. [3] (HCA)

THTR2711 - Sustainability in the Arts
Course Description

Causes and cultural impact of climate crisis; development of sustainable solutions in entertainment production. [3] (HCA)

THTR2781 - The History of Fashion
Course Description

Men's and women's fashion from ancient times to the present. Women's roles in society as reflected in their clothing. [3] (P)

THTR3201W - Contemporary Drama and Performance Criticism
Course Description

Dramatic literature and performance theory. Advanced techniques in writing performance criticism. Prerequisite: at least sophomore standing and 1010, 1010W, or 1111. [3] (P)

THTR3207 - Storytelling as Performance
Course Description

Multiple cultural traditions, including the development and practice of oral language skills. [3] (HCA)

THTR3281 - Theatre in London
Course Description

Intensive overseas summer study program in contemporary British theatre. Ten productions in London covering a broad spectrum of theatrical offerings. Weekly seminars with artists and administrators from the British professional stage. [3] (P)

THTR3282 - Theater and Performance in the United Kingdom
Course Description

Maymester abroad. Performing arts scenes of London, Glasgow, and Edinburgh. Contemporary British theatre: state-funded, commercial, and independent artistry. Performance styles and traditions. [3] (HCA)

THTR3311 - Playwriting
Course Description

Instruction in writing plays with critical attention to dramatic themes and characterization. Prerequisite: THTR 2311W. [3] (HCA)

THTR3311W - Playwriting
Course Description

Instruction in writing plays with critical attention to dramatic themes and characterization. Serves as repeat credit for THTR 3311. [3] (HCA)

THTR3611 - Jazz Acting
Course Description

Actor training with an emphasis on Afrocentric methods such as improvisation and ensemble performance. Offered on a graded basis only. Prerequisite: 1611. [3] (HCA)

THTR3612 - Scene Study
Course Description

Actor training with an emphasis in character development and interaction from dramatic texts. Offered on a graded basis only. Prerequisite: 1611. [3] (HCA)

THTR3721 - Set Design
Course Description

Aesthetics and processes. Development and communication of design ideas through script analysis, research, virtual and physical model-building. Contemporary scenic practices. Prerequisite: 1711. [3] (HCA)

THTR3741 - Costume Design
Course Description

Aesthetics and processes. Development and communication of design ideas through the drawing and rendering of the costumed figure. Prerequisite: 1711 or 2781. [3] (HCA)

THTR3761 - Lighting and Sound Design
Course Description

Aesthetics and processes. Development and communication of design ideas through script analysis and research. Lighting and audio theory and practice. Contemporary lighting and audio technology. Prerequisite: 1711. [3] (HCA)

THTR3781 - Management in the Theatre
Course Description

Roles of theatre and stage managers. Tools and methods. Organizational theories and skills. Prerequisite: 1711. [3] (HCA)

THTR3851 - Independent Study
Course Description

A research project in selected aspects of theatre and drama to be arranged with the instructor. [Variable credit: 1-3] (No AXLE credit)

THTR3891 - Selected Topics in Theatre
Course Description

Intensive study of a particular area of theatre. Emphasis on personal investigation and written reports. May be repeated for credit more than once if there is no duplication in topic. Students may enroll in more than one section of this course each semester. [3] (No AXLE credit)

THTR3892 - Advanced Topics in Theatre and Performance Studies
Course Description

[3] (HCA)

THTR4611 - Advanced Topics in Acting
Course Description

Advanced study of select acting skills and techniques. Offered on a graded basis only. Prerequisite: 1611. [3] (HCA)

THTR4998 - Senior Honors Thesis
Course Description

Independent research and completion of an honors thesis, done in consultation with a member of the faculty in Theatre. Open only to those who qualify to begin departmental honors work in Theatre. [3] (No AXLE credit)

THTR4999 - Senior Honors Thesis
Course Description

Independent research and completion of an honors thesis, done in consultation with a member of the faculty in Theatre. Open only to those who qualify to begin departmental honors work in Theatre. [3] (No AXLE credit)

Tibetan Language

TBTN1101 - Elementary Tibetan I (UVA)
Course Description

Grammar and syntax of spoken and written Tibetan. Listening, speaking, reading, and writing from Tibetan short stories, proverbs, and other sources. Tibetan culture. Offered on a graded basis only. [4] (No AXLE credit)

TBTN1102 - Elementary Tibetan II (UVA)
Course Description

Grammar and syntax of spoken and written Tibetan; listening, speaking, reading and writing. Examples from Tibetan short stories and proverbs, among other sources. Exposure to Tibetan culture to improve communication skills, using a dynamic, interactive format . Offered on a graded basis only. Prerequisite: 1101. [4] (INT)

TBTN2201 - Intermediate Tibetan I (UVA)
Course Description

Grammar and syntax of spoken and written Tibetan. Listening, speaking, reading, and writing through the integrated use of spoken and literary forms. Enhanced knowledge of Tibetan culture. Offered on a graded basis only. [4] (INT)

TBTN2202 - Intermediate Tibetan II (UVA)
Course Description

Grammar and syntax of spoken and written Tibetan; listening, speaking, reading and writing through spoken and literary forms. Further study of Tibetan culture to improve communication skills. Offered on a graded basis only. Prerequisite: 2201. [4] (INT)

Turkish

TURK1101 - Elementary Turkish I (Duke)
Course Description

Basic Turkish language and daily culture in modern-day Turkey. Grammar, listening, writing, and speaking. Offered on a graded basis only. [3] (No Axle Credit)

TURK1102 - Elementary Turkish II (Duke)
Course Description

Basic Turkish language and daily culture in modern-day Turkey. Turkish in everyday life and culture with media such as Youtube videos and songs. Offered on a graded basis only. Prerequisite: 1101. [3] (INT)

TURK2201 - Intermediate Turkish I (Duke)
Course Description

Oral, written, and reading forms via video lectures and audio conversations, TV commercials, film trailers, and news media. Offered on a graded basis only. Prerequisite: 1102. [3] (INT)

TURK2202 - Intermediate Turkish II (Duke)
Course Description

Oral, written, and reading forms via video lectures and audio conversations, TV programs, film trailers, and news media. Offered on a graded basis only. Prerequisite: 2201. [3] (INT)

University Courses

UNIV0097B - COVID-19 Arrival Testing B

UNIV2655 - Historic Black Nashville
Course Description

This course will explore the under-developed history of black Nashville from settlement to the early twentieth century. Through instructor and guest lectures, digital humanities instruction, site visits, and independent research in local archives, students will recover and document the lives of the city's enslaved and free people of color as well as the community institutions and social and artistic movements that defined the black experience in Nashville. As students gain substantive expertise, they will also learn research methods and multiple media and technologies for telling historical narratives. No credit for students who have earned credit for HIST 2655. Offered on a graded basis only. Landers and Sharfstein. FALL. [3] (US)

UNIV3100 - Rhythm of Change: African Music and African Politics
Course Description

This class studies the relationship between music and politics in sub-Saharan Africa and focuses on a central question: How does music reflect and drive political change in Africa? The course synergizes popular music with modern African musical styles and centers around four political themes: (1) electoral politics, (2) violent conflict, (3) nationalism and identity, and (4) globalization. [3]

UNIV3200 - Race, Place, and Power
Course Description

This course will examine the crucial entanglement between race and place from an interdisciplinary and transnational perspective. Paying attention to three different national contexts--Brazil, South Africa, and the United States--the course will investigate the politics of spatial segregation and consider the global dimensions of racialized injustice and decolonial resistance. Through the study of literary texts, scholarly essays, film, music, video, and news media, we will ask how and why what appear to be vastly different racial regimes and socio-political contexts produce similar socio-economic outcomes and dominant ideologies. Students will also interrogate the spatial and racial politics of Nashville. [3]

UNIV3225 - Social Entrepreneurship
Course Description

This course will help nascent social entrepreneurs consider both opportunities and challenges presented by this emerging form of social action. Through a combination of lecture and discussion, guest speakers and written case studies, we will engage the important questions of "what," "so what," and "what next" that drive the ideas and practice of social entrepreneurs. While the course will place particular emphasis on the areas of education and community development, time will be spent looking at social change in other arenas as well. [3]

UNIV3275 - The Ethics of Artificial Intelligence
Course Description

Over the past decade, AI technology has progressed exponentially, becoming a key fabric of our everyday lives across e-commerce, educational and research platforms, entertainment, and the popular imaginary. While marvelous advancements in the sector have been celebrated as the sublimation of human reason, the mysterious workings, existential implication, and potential misuse of AI have also become cause for concern, catalyzing demands to establish ethical standards and regulatory parameters. Responding to this urgent need, this course explores the composition and representations of AI technology from an ethical perspective. Students will learn basic yet fundamental aspects of intelligent, computational modeling and processing, and critically reflect on their learnings through literary/philosophical/legal/business materials through workshops, discussions, guest lectures, and field trips. Aiming to cultivate interdisciplinary and immersive learning, the course will build toward creative projects, which will be showcased in a conference-fair at the end of the semester. [3]

UNIV3278 - Tackling Big Questions with Mobile Cloud Computing
Course Description

This course will address big questions motivated by the rapid growth of interest across disciplines in computing technologies that have occurred over the past decade, due in part to the pervasive and profound impact of mobile devices and powerful cloud computing services on many aspects of our daily lives. Examples of these big questions include how mobile cloud computing technologies are (1) being used to engage teens with chronic diseases, (2) changing political discourse in the US and around the world, and (3) helping economically disadvantaged individuals bridge the digital divide to obtain better guidance on nutrition and legal matters. This class will provide a multidisciplinary environment where undergraduate and graduate students from multiple Schools team with Computer Science students to address big questions in a project-based format. Each project will be sponsored and mentored by a subject matter expert in the field from other Schools on campus, with the goal of providing students a hands-on experience understanding and applying key mobile cloud computing techniques, tools, and principles needed to tackle these big questions. FALL, SPRING [3 each semester; maximum of 6 hours total for all semesters]

UNIV3315 - Planetary Health, Policy and Social Justice
Course Description

This is a three credit hour elective course designed for students interested in exploring the intersections between primary care, planetary health and climate change (according to WHO, currently the greatest threat to global health), social justice and policy. The causes of climate change ad the resulting primary, secondary and tertiary impacts on people and communities will be examined through the lens of global health and policy. Students will develop evidence based and targeted adaptation and mitigation strategies as well as policy-based solutions, all incorporating science and engineering, political science and policy, law and economics as well as nursing and medicine to address healthspan disparities related to climate change and social vulnerability. [3]

UNIV3320 - The Causes and Consequences of LGBT Public Policies
Course Description

This new Multicultural University Course will introduce students to critical questions about public policies relevant to LGBTQIA populations, including: legal access to same-sex marriage; nondiscrimination policies in employment, housing, and public accommodation, including whether they are trans-inclusive; so-called 'bathroom bills'; religious freedom restoration laws (also called 'conscience' acts); and others. The course will investigate the causes, correlates, and consequences of these policies using the lenses of economics, law, sociology, political science, and public health and medicine. Students will critically analyze leading research articles and mainstream media discussions of LGBTQ-related public policies; hear from guest speaker experts; perform an immersive research project; and visit Tennessee policymakers to understand views on a range of LGBTQ-related issues. [3]

UNIV3325 - Health Policy Analysis & Advocacy
Course Description

Health is both wildly sought after and wildly controversial. We race for cures, rally for affordable and accessible health care, debate the ethics of various treatments and pass laws meant to keep our people healthy. This Multicultural University Course will prepare students to be more effective and skillful participants in debates over health policy by immersing them in the national and Tennessee health policy environment. This course promotes critical scholarship and leadership through engagement with national policy experts, media and locally elected officials. Students will learn how to leverage publicly available data to write policy reports that address important health policy problems; additional readings and skills-based exercises are required for graduate students. [3]

UNIV3330 - The History of Science and Brewing
Course Description

Historical and scientific perspectives on brewing beer and related beverages. History of brewing and beer production, religious dimensions of beer consumption in past societies, biochemical processes of fermentation and alcohol abuse, and neuroscience of reward and addiction. The course includes a laboratory component. [3]

UNIV3350 - Design Thinking, Design Doing
Course Description

This course is an introduction to theories and practices of design. The design thinking elements of the course offer a critical understanding of methods for researching interactions between humans and the social and built environment, whereas the design doing elements teach how to develop purposeful interventions that result in more meaningful and effective interactions. Throughout, we will examine how (and what) people can learn while engaged in the design process. Working in teams, students in the course will spend significant time observing, listening, analyzing, story telling, and otherwise engaging users as they work in teams to develop and implement meaningful and transformative designs to projects in the domains of education, health and business. [3]

UNIV3360 - Data Science Methods for Smart City Applications
Course Description

Integrating technological and socio-economic approaches to challenges facing metropolitan areas experiencing unprecedented growth. Infrastructure and resources needed for sustainable development and maintaining quality of life. Adapting technology-driven internet-of-things framework to Smart Cities concept of urban development. Ethical and justice concerns, including privacy and equitable access to data. Algorithmic methods of machine learning and statistics, such as supervised and unsupervised learning, factor analysis, multi-dimensional regression analysis, and hierarchical linear modeling. Agent-based and equation-based simulation modeling. Linear and nonlinear optimization. Mixed methods approaches to gathering and analyzing qualitative and quantitative socio-economic data. Computational methods for data from large distributed infrastructure. The course will combine lectures on the fundamental material, and a semester-long multi-disciplinary group project. [3]

UNIV3370 - Cultural Heritage in Context: The Future of the Past
Course Description

Cultural heritage is under threat globally as a casualty of war, economic development, and environmental changes. This course is concerned with the preservation the tangible and intangible products of human societies from prehistory to the present. Given the complexities of cultural heritage management, this course is relevant to multiple disciplines in the humanities (anthropology, archaeology, art, history, history of art, philosophy), social sciences (communication studies, economics, sociology) and physical sciences (aerospace, computer science, materials sciences), as well as law and music. Students will learn about current issues in cultural heritage from Vanderbilt faculty and invited experts and will undertake independent research projects. [3]