Vanderbilt University Undergraduate Catalog

Calendar 2013/2014

FALL SEMESTER 2013

Deadline to pay fall charges / Wednesday 14 August
Classes begin / Wednesday 21 August
Registration ends / Wednesday 28 August, 11:59 p.m.
Fall break / Thursday 10 October–Friday 11 October
Family Weekend / Friday 27 September–Sunday 29 September
Homecoming and related activities / Monday 21 October–Saturday 26 October
Thanksgiving holidays / Saturday 23 November–Sunday 1 December
Classes end / Thursday 5 December
Reading days and examinations / Friday 6 December–Saturday 14 December
Fall semester ends / Saturday 14 December

SPRING SEMESTER 2014

Deadline to pay spring charges / Thursday 2 January
Classes begin / Monday 6 January
Registration ends / Monday 13 January, 11:59 p.m.
Spring holidays / Saturday 1 March–Sunday 9 March
Classes end / Monday 21 April
Reading days and examinations / Tuesday 22 April–Thursday 1 May
Commencement / Friday 9 May

MAYMESTER 2014

Classes begin / Monday 5 May
Classes end; examinations / Friday 30 May

SUMMER SESSION 2014

Classes begin in Arts and Science, Blair, and Engineering / Tuesday 3 June
Module I begins in Peabody / Monday 9 June
Examinations for first-half courses / Friday 4 July
Second-half courses begin / Tuesday 8 July
Examinations for second-half and full-term summer courses / Friday 8 August

Undergraduate Catalog

College of Arts and Science
Blair School of Music
School of Engineering
Peabody College

Vanderbilt
University
2013/2014

Containing general information
and courses of study
for the 2013/2014 session
corrected to 18 June 2013
Nashville

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- 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 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 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, religion, color, national or ethnic origin, age, disability, military service, 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 sexual orientation, gender identity, or gender expression consistent with the university's nondiscrimination policy. Inquiries or complaints should be directed to the Equal Opportunity, Affirmative Action, and Disability Services Department, Baker Building, PMB 401809, Nashville, TN 37240-1809. Telephone (615) 322-4705 (V/TDD); FAX (615) 343-4969.

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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 3,500 full-time members and a diverse student body of more than 12,500. Students from many regions, backgrounds, and disciplines come together for multidisciplinary study and research.

The 330-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, park-like setting of broad lawns, shaded paths, and quiet plazas.

Off-campus facilities include Vanderbilt Dyer Observatory, situated on a 1,131-foot hill six miles south.

The schools of the university offer the following degrees:

College of Arts and Science. Bachelor of Arts.
Blair School of Music. Bachelor of Music.
Divinity School. Master of Divinity, Master of Theological Studies.
School of Engineering. Bachelor of Engineering, Bachelor of Science, Master of Engineering.
Graduate School. Master of Arts, Master of Arts in Teaching, Master of Fine Arts, Master of Liberal Arts and Science, Master of Science, Doctor of Philosophy.
Law School. Master of Laws, Doctor of Jurisprudence.
School of Medicine. Master of Education of the Deaf, Master of Health Professions Education, Master of Public Health, Master of Science in Clinical Investigation, Master of Laboratory Investigation, Master of Science in Medical Physics, Master of Science (Speech-Language Pathology), Doctor of Audiology, Doctor of Medical Physics, Doctor of Medicine.
School 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 Science in Finance.
Peabody College. Bachelor of Science, Master of Education, Master of Public Policy, Doctor of Education.

No honorary degrees are conferred.

Accreditation

Vanderbilt University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award bachelor's, master's, professional, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call (404) 679-4500 for questions about the accreditation of Vanderbilt University.

The Libraries

The Jean and Alexander Heard Library System

Vanderbilt University's libraries are among the top research libraries in the nation, home to more than eight million items, including print publications, microfilm items, and digital collections. The libraries provide electronic access to tens of thousands of full-text journals and over half a million e-books and other research resources accessible via the campus network, from 250 workstations in campus libraries, as well as authenticated access (VUnetID and e-password) from off campus. Resources may be located through Acorn, the libraries' online catalog, and through DiscoverLibrary, the libraries' new information discovery tool.

The oldest manuscript in the collection dates from c. 1300 and new publications are being added every day. Among the libraries' collection strengths are the W. T. Bandy Center for Baudelaire and Modern French Studies, a comprehensive collection of materials on Charles Baudelaire and French literature and culture; the Southern Literature and Culture Collection; Latin American collections for Brazil, Colombia, the Andes, Mesoamerica, and Argentina; the Television News Archive, the world's most extensive and complete archive of television news covering 1968 to present; the Revised Common Lectionary, one of the first published Web-based resources of scriptural readings for the liturgical year; and the Global Music Archive, a multimedia reference archive and resource center for traditional and popular song, music, and dance of Africa and the Americas.

In partnership with faculty, library staff teach students valuable skills for locating and evaluating the latest information in a complex array of sources. Campus libraries with discipline-specific collections are home to professional librarians who provide expert support in that area of study. Online reference is available through the homepage. Options for individual study are complemented by group study spaces and instructional rooms, as well as learning commons and cafes. Exhibits throughout the libraries offer intellectual and creative insights that encourage students to see their own work in new ways. Students, faculty, and staff may come to the library to read in a cozy nook, meet friends for group study, grab a quick meal, or see an exhibit.

Information Technology Services

Information Technology Services (ITS) offers voice, video, data, computing, and conferencing services to Vanderbilt students, faculty, and staff, and provides free antivirus downloads and malware prevention in the residence halls and many campus areas.

ITS maintains and supports VUnet, the campuswide data network that provides access to the Internet, and VUnetID, the

authentication service that enables Vanderbilt users to securely identify themselves to many services on VUnet. Those services include YES, Your Enrollment Services; Online Access to Knowledge (OAK); and VU Gmail, the university's email system of choice for Vanderbilt undergraduates. This service also includes VUmailguard, designed to protect your email from viruses, unwanted mail (spam), and high-risk attachments.

ITS partners with Sprint, Verizon, and AT&T to offer discounts for cellular phone service. For discount information see *its.vanderbilt.edu/cellphone*.

Vanderbilt offers all students the latest version of Microsoft Office and Microsoft Windows free of charge through our Microsoft Campus Agreement. See *softwarestore.vanderbilt.edu* for more information.

For campus residents, ITS supports ResNet, which provides a direct connection to VUnet and the Internet. Cable television ports are provided in each campus residence. For more information about ResNet, see *digitallife.vanderbilt.edu/resnetstart.html*. Through the Digital Life initiative, Vanderbilt highlights VUmix, legal, safe, inexpensive, and easy ways to explore and share music and digital content. See *digitallife.vanderbilt.edu* and *vanderbilt.edu/vumix* for details.

ITS offers various conferencing and collaboration services for students. In addition to Gmail at Vanderbilt, undergraduates can enjoy Google docs and Google chat among other Google services at *gmail.vanderbilt.edu*. Audio and video conferencing and the ITS podcast studio are also available. See *its.vanderbilt.edu/services/collaboration* for more information.

The ITS Help Desk provides information to students, faculty, and staff about VUnet and VUnet services. Help Desk locations, hours, contacts, and other information can be found at *vanderbilt.edu/helpdesk*.

For more information on IT services and computing at Vanderbilt, go to *its.vanderbilt.edu*.

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.

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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 freshman year at Vanderbilt. Through Vanderbilt study abroad programs with our own resident directors and through additional programs provided by agreements with other universities and providers, Vanderbilt students can take direct credit courses in Argentina, Australia, Austria, Brazil, Canada, Chile, China, the Czech Republic, Denmark, the Dominican Republic, Egypt, France, Germany, Hungary, India, Ireland, Israel, Italy, Japan, Jordan, Kenya, Morocco, Nepal, the Netherlands, New Zealand, Russia, Samoa, Senegal, Serbia, Singapore, South Africa, Spain, Sweden, Switzerland, Uganda, the United Kingdom, and Vietnam.

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, with the exception of Vanderbilt's programs in France, Germany, and Spain, the student's application must also be approved by the appropriate host university, institute, or consortium. Study abroad programs that are either managed by or approved by Vanderbilt offer direct credit toward the Vanderbilt degree. With the exception of AXLE credit, hours earned through these programs and approved in advance by the appropriate department are treated as if earned on the Nashville campus and serve to satisfy the residence requirement (see the chapter on Academic Regulations).

Students studying on Vanderbilt programs or Vanderbilt-approved programs for the academic year or semester are eligible for federal and VU financial aid. This includes merit scholarships but excludes work-study. All participants in direct-credit programs are billed through Vanderbilt Student Accounts and must pay Vanderbilt tuition and a program fee, which includes housing in addition to an activity fee and health insurance if required by the program. Other study abroad programs may be approved for transfer credit by the dean of the student's college/school. Information is available from the Global Education Office (GEO), Suite 115, Student Life Center, and at *vanderbilt.edu/geo.*

Vanderbilt Programs

The three oldest Vanderbilt study abroad programs are in Aix-en-Provence, France, Regensburg, Germany, and Madrid, Spain. These programs give undergraduates the opportunity to develop greater fluency in the language of the host country and require students to have sufficient facility to take classes offered in that language. Residence in France or Spain may be for the academic year, the fall or spring semester, or the summer. The program in Germany is offered in partnership with Wheaton College and is primarily for the spring semester, but arrangements can be made for students wishing to study for the entire academic year.

A range of exchange programs offer students an opportunity to study at a partner university. At Rikkyo University in Tokyo, students can learn more about the culture and society of Japan while studying the Japanese language intensively; students have the opportunity to apply for scholarships to cover most of their living costs. The Institut d'Études Politiques in Paris is a world-renowned institution for study of the social sciences, where Vanderbilt students can learn alongside peers from France and all around the world. Stockholm University offers course work in English in a wide range of subject areas, while affording the chance to learn more about Swedish and Scandinavian culture. Warwick University in Coventry, England, is a top research university and offers a range of subjects in twenty-eight academic departments, most notably in business and economics. At City University of Hong Kong and the Hong Kong University of Science and Technology, students can take courses in engineering, science, and other disciplines in a fast-growing and international city. Budapest University of Technology and Economics offers courses in new interdisciplinary engineering fields. In the Netherlands, Utrecht University and its two honors colleges offer English-language course work in a variety of disciplines including history, economics, math, and the social sciences. Australia's University of Melbourne offers a full selection of courses, including courses through the Victorian College of the Arts and Music. At the National University of Singapore, students may receive credit in a variety of engineering disciplines. For a complete list of exchange programs, visit *vanderbilt.edu/geo.*

In addition, programs are offered via direct enrollment at the University of the Balearic Islands in Palma de Mallorca, Spain; at American University in Cairo, Egypt; at Hebrew University in Jerusalem, Israel; in Metz, France, for engineering students in affiliation with the Georgia Institute of Technology (Georgia Tech); in Dresden, Germany, for engineering students in affiliation with Boston University; and in Rome, Italy, through the Intercollegiate Center for Classical Studies (ICCS). The ICCS is a consortium of thirty-seven universities and colleges and is open only to majors in the Departments of Classical Studies and History of Art. Applications for all of the listed programs are processed through the Global Education Office (GEO). Visit *vanderbilt.edu/geo.*

Vanderbilt-Approved Programs

Through arrangements with the Council on International Educational Exchange (CIEE), CET Academic Programs (CET),the Danish Institute for Study Abroad (DIS), Institute for the International Education of Students (IES), the Institute for Study Abroad (IFSA) Butler University, and the School for International Training (SIT), Vanderbilt students may select from a wide range of study abroad opportunities.

The Council on International Educational Exchange (CIEE) offers programs with a focus on cultural immersion in Australia, Argentina, Brazil, Chile, China, the Dominican Republic, Japan, Russia, Senegal, South Africa, and Spain. CET sponsors Vanderbilt-approved programs in Beijing, Harbin, Hangzhou, and Shanghai, China, in Florence and Siena, Italy, and in Prague, Czech Republic. DIS Copenhagen offers course work in English in multiple subject areas, including European culture

and history, politics and society, international business and economics, medical practice and policy, marine and environmental biology, psychology and child development, and more. Through the IES programs in Vienna, Austria, and Amsterdam, the Netherlands, qualified students can pursue course work in music studies (performance, composition, history, and theory). Through the Institute for Study Abroad (IFSA) at Butler University, qualified students can study in Australia, England, Ireland, New Zealand, Northern Ireland, and Scotland. Programs offered by SIT, in Brazil, Chile, India, Jordan, Kenya, Morocco, Nepal, Samoa, Serbia, Switzerland, Uganda, and Vietnam are centered on independent research projects. For a complete list of approved programs, visit *vanderbilt.edu/geo.*

Vanderbilt Experiential Learning Programs

The Office of Active Citizenship and Service (OACS) offers a number of global and domestic experiential learning programs. These programs offer students opportunities to intern in Nashville, or to develop leadership skills, improve foreign language proficiency, and work with NGOs abroad. For specific information about the different programs, contact OACS in Sarratt Student Center/Rand Hall or visit *vanderbilt.edu/oacs/oacs-programming.*

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

Preparation for Careers in the Health Professions

Study programs leading to careers in medicine, dentistry, veterinary science, pharmacy science, and many related areas are under the general supervision of Dr. Robert Baum, director of the Health Professions Advisory Office.

Medicine

There is no formal premedical program of courses at Vanderbilt. Each student should plan a program to meet individual requirements. Premedical studies should include whatever courses may be necessary to meet medical school admission requirements and to satisfy the requirements of the student's undergraduate degree program. Students interested in premedical studies should plan their undergraduate programs in consultation with Dr. Baum and their primary adviser. Details of the new 2015 MCAT are at *vanderbilt.edu/hpao*.

See the *Vanderbilt University School of Medicine Catalog* for the official statement on minimum requirements for admission to Vanderbilt University School of Medicine. Admission to the Vanderbilt University School of Medicine is competitive. There is no course of study that will ensure admission.

Students are urged to consult the directory *Medical School Admission Requirements: United States and Canada,* published by the Association of American Medical Colleges, as a guide to planning their undergraduate programs. Additional information on preparation for medical study can be found in the College of Arts and Science section of this book.

Nursing

Students interested in nursing may earn both a baccalaureate degree in a non-nursing major and a master of science in nursing (M.S.N.) degree in five calendar years. Interested students apply for admission to either the College of Arts and Science or Peabody College and indicate on their applications that pre-nursing is their intended program of studies. In addition to their faculty advisers in the College of Arts and Science or Peabody, pre-nursing students will be assigned faculty advisers in the School of Nursing to assist them in planning their program of studies.

Pre-nursing students at the College of Arts and Science obtain both the baccalaureate degree and the M.S.N. degree by combining three and one-half years (a minimum of 105 earned hours, 102 of which must be in Arts and Science courses) of study in the College of Arts and Science with six semesters of study in the School of Nursing. Students will receive the baccalaureate from the College of Arts and Science at the end of the eighth semester under the senior-in-absentia program, and the M.S.N. from the School of Nursing after completing an additional five consecutive semesters of study. This program of study requires that students complete the general curriculum requirements (including AXLE and major) for the baccalaureate degree and satisfy the prerequisite courses for admission to the School of Nursing. The first three semesters in nursing are accelerated generalist nursing courses and serve as a "bridge" into the Master of Science in Nursing program by preparing students for the NCLEX exam to become a Registered Nurse (R.N.). These courses also provide the foundation equivalent to the bachelor's degree in nursing for course work in the selected nursing specialty. Upon completion of three semesters of prespecialty courses, students enter an additional three semester sequence of courses in their declared specialty in order to earn the M.S.N. degree.

Students must apply to the School of Nursing and to the Administrative Committee of the College of Arts and Science for admission to the senior year in absentia program by December 1 of their junior year. Students are subject to all School of Nursing admission requirements, and no student is assured of admission to the School of Nursing. Up to 16 hours of School of Nursing courses approved by the College of Arts and Science may be counted toward completion of the undergraduate degree. Upon acceptance to the School of Nursing, students will be assigned an adviser and should schedule an advising appointment.

Pre-nursing students at Peabody College may either (a) complete a major in child development and earn a B.S. through a senior-in-absentia program or (b) complete a major in human and organizational development and earn a B.S. through a senior-in-absentia program. Upon admission to the School of Nursing, the student is required to complete six semesters (two calendar years) of full-time study to earn the

M.S.N. Additional information may be found in the Peabody College section of this catalog.

Admission to the Graduate Nursing Program. Prior to admission to the School of Nursing, applicants must have completed prerequisite courses, including the following:

A required introductory course in statistics that includes descriptive and inferential statistical techniques; Mathematics 127a–127b, Mathematics 218, or Peabody Psychology 2101 will fulfill this requirement.

Eleven hours of natural science courses. Courses in human anatomy and physiology (Nursing 210a and 210b) and microbiology (Nursing 150) are required. Chemistry 101a–101b or 102a–102b and Biological Sciences 110a–110b are strongly recommended for admission but not required.

Three hours of lifespan development are required. Human and Organizational Development 1000, Applied Human Development; or Peabody Psychology 1630, Developmental Psychology will fulfill the lifespan development requirement.

Two hours of nutrition are required. Nursing 231a, Introduction to Nutritional Health, fulfills the requirement for nutrition.

The remaining hours of prerequisites must consist of courses with grades of *C* or above; physical education and Pass/Fail courses may not be included in the prerequisites.

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, 217 Godchaux Hall, Nashville, Tennessee 37240, (615) 322-3800, or see 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.

Officer Education Programs

Air Force Reserve Officer Training Corps (AFROTC)

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

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. 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.

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 *tnstate.edu/rotc* for application deadlines. Vanderbilt University students may participate in the Air Force ROTC program in cooperation with Tennessee State University. Call Detachment 790, (615) 963-5931, 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. In this program students are eligible to compete for scholarships (2.5+ GPA) that cover the cost of tuition and textbooks. Additionally, Vanderbilt University offers a generous stipend to all AFROTC cadets.

Curriculum. The General Military Course (GMC) is 1 credit hour and is composed of the first four semesters of aerospace studies (AERO) and is for freshmen and sophomores. The Professional Officer Course (POC) is 3 credit hours and constitutes the final four semesters of AFROTC study and enrolls juniors and seniors. The Leadership Lab is also 1 credit hour.

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) 963-5931/5977 or check our website at *tnstate.edu/rotc.*

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 of up to $500 tax-free.

Sponsored Activities

Arnold Air Society is a national society of AFROTC cadets who excel in character and academics and exhibit interests in the study of aerospace technology. The group meets at TSU.

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
Foundations of the United States Air Force

SOPHOMORE YEAR
Air Power History

JUNIOR YEAR
Air Force Leadership Studies

SENIOR YEAR
National Security Affairs/Preparation for Active Duty

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 beginning at $300 for freshmen and increasing to $500 for seniors. 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 from $300 to $500 depending on the academic level. 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.

Leadership development and assessment course (LDAC) — This five-week leadership exercise at Fort Lewis, Washington, 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 except MS 211 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 Kenric M. Smith
MILITARY INSTRUCTORS Mark Peckham, Stephen Schiller, James Thompson

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 LDAC.

FIRST YEAR

MS-PC 111. Leadership and Personal Development. (Formerly MS 111). 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 111a. Leadership and Personal Development Lab. (Formerly MS 111a). 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 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 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 113. Leadership and Personal Development II. (Formerly MS 113). 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 113a. Leadership and Personal Development II Lab. (Formerly MS 113a). 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 172. World War II.

HIST 173. The U.S. and the Cold War.

HIST 174. The U.S. and the Vietnam War.

MS 151. American Military History: Principles of War. Offered on a pass/fail basis only. [3]

PSCI 272W. The War in Iraq, 2003–2011.

MS-PC 150. Foundations of Leadership. MS-PC 150 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 150a. Foundations of Leadership Lab. This lab builds upon the classroom topics in MS-PC 150 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 152. Foundations of Tactical Leadership. (Formerly MS152). MS-PC 152 builds upon MS-PC 150. 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 152a. Foundations of Tactical Leadership Lab. MS-PC 152a builds upon MS-PC 150 and MS-PC 150a. 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 211. Leadership and Problem Solving. No Credit Toward Current Degree. [3]

MS-PC 212. Applied Team Leadership. (Formerly MS 212). 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 211. [3]

SUMMER BETWEEN JUNIOR AND SENIOR YEAR

Leadership, Development, and Assessment Course (1 Cr) — All students pursuing a commission as an Army Officer must complete the Leadership, Development, and Assessment Course (LDAC) 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 280a). 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 251. Leadership and Ethics. (Formerly MS 251.) 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 212 or MS 212. [3]

MS-PC 252. Leadership in a Complex World. (Formerly MS 252). 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. Prerequisite: MS-PC 251 or MS 251.

Naval Reserve Officer 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. Scholarship students take the prescribed naval science course each semester, participate weekly in naval science lab, and engage in a four-week, summer training program 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. 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 also provides scholarship students with a $6,000 per year stipend toward room and board. College Program students are provided with 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 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. 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 150a–150b, or 155a–155b completed by the end of the sophomore year.

Physics (Navy option only) (6 credits): 116a–116b or 121a–121b completed by the end of the junior year.

English (6 credits): Two semesters of any English course or courses consisting of a 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 (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 (800) 288-01183, 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 Scott Kraverath
EXECUTIVE OFFICER K. Neil Radford
MARINE INSTRUCTOR Kevin Bell
NAVAL INSTRUCTORS Bria Chambers, Ethan Griggs, Daniel Reed, Brian Tribbitt

Naval Science Courses

For Navy-option NROTC students, the following naval science courses are required for commissioning: NS 100, HIST 169, NS 241, ES 231, ES 230, ES 232, NS 130, and NS 242 and their appropriate labs. For Marine-option NROTC students, the following naval science courses are required for commissioning: NS 100, HIST 169, NS 241, HIST 169c, HIST 169d, and NS 242 and their appropriate labs. For all courses listed below, the associated lab sections are intended for NROTC students only.

FIRST YEAR

NS 100. Introduction to Naval Science. No Credit Toward Current Degree. [3]

HIST 169. Sea Power in History. (Formerly 131). An introductory survey of the U.S. Navy's role in foreign and defense policies from the American Revolution to the present. The course also examines the broad principles, concepts, and elements of sea power throughout history. Key points will include technological advances, interservice relations, strategies, and governmental policies pertaining to sea power. This course is designed to meet the NROTC requirement. Does not count toward history major. [3] (US)

SOPHOMORE YEAR

NS 241. Organization and Management. [3]

ES 231 Navigation. (Formerly NS 231). 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]

JUNIOR YEAR

ES 230. Ships Engineering Systems. (Formerly NS 121). Ship characteristics and types, including design and control, propulsion, hydro-

dynamic forces, stability, compartmentation, and electrical and auxiliary systems. Theory and design of steam, gas turbine, and nuclear propulsion. FALL. [3]

ES 232. Ships Weapons Systems. (Formerly NS 232). 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]

SENIOR YEAR

NS 130. Naval Operations. No Credit Toward Current Degree. [3]

NS 242. Leadership and Ethics. No Credit Toward Current Degree. [3]

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

History 169c. Evolution of Warfare. (Formerly NS 2311). 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)

History 169d. Amphibious Warfare. (Formerly NS 2411). Broad aspects of warfare and their interactions with amphibious activities. Influence of previous campaigns upon current military policies and practices. Case studies. Repeat credit for students who have completed NS 2411. [3] (No AXLE credit)

Interdisciplinary Centers, Institutes, and Research Groups

Vanderbilt actively promotes research and teaching that crosses disciplines, departments, and institutional lines through a multitude of centers, institutes, and research groups. Below is a sampling of interdisciplinary initiatives at the university and medical center. For more information, see *research.vanderbilt.edu/centers-institutes.*

The Cal Turner Program for Moral Leadership in the Professions works to develop the leadership and ethical capacities of those serving in the professions. CTP brings together professionals from a range of disciplines to take on significant social challenges and fosters within Vanderbilt's students and its broader constituents a deep sense of vocation, encouraging professionals to remember the deeper purposes that motivate their work. *vanderbilt.edu/ctp*

The Center for Biomedical Ethics and Society provides leadership in education, research, and clinical service at Vanderbilt University Medical Center concerning the ethical, legal, and social dimensions of medicine, health care, and health policy. *medicineandpublichealth.vanderbilt.edu*

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. Brain scientists, psychologists, clinicians, and engineers collaborate on research and educate undergraduate and graduate students in a wide range of fields. *cicn.vanderbilt.edu*

The Center for Latin American Studies, established in 1947, works to advance knowledge about and understanding of the region's history, culture, political economy, and social organization. The center administers the Latin American studies undergraduate and master's programs, as well as a joint Master of Arts and Master of Business Administration program with the Owen Graduate School of Management and a joint degree program in law and Latin American studies with Vanderbilt Law School. CLAS also fosters a lively research community on campus by sponsoring colloquia, conferences, films, and speakers, and reaches thousands in Nashville and the surrounding region through various outreach programs to the educational, business, medical, and media communities. *vanderbilt.edu/clas*

The Center for Medicine, Health, and Society integrates studies of the humanities, social sciences, and academic medicine in order to examine the role of health and health care in contemporary society. The center offers undergraduate and graduate programs of study. *vanderbilt.edu/mhs*

The MacArthur Foundation Research Network on Law and Neuroscience addresses a focused set of closely related problems at the intersection of neuroscience and criminal justice, including mental states, capacity, and evidence. *lawneuro.org*

The Max Kade Center for European and German Studies fosters an international perspective on issues relating to Europe and transatlantic relations. It offers an interdisciplinary major and minor along with joint majors in European studies (EUS) that are designed to broaden students' appreciation of the European continent, the evolution of a European identity over the centuries, the emergence of the EU, and the way Europe responds to such challenges as migration and integration, energy and sustainability, security, and globalization. Its curriculum is designed to give majors disciplinary breadth as well as expertise in a specialty of their choosing. The MKC seeks to prepare students for international careers or advanced study. *as.vanderbilt.edu/europeanstudies*

The National Center on School Choice conducts scientific, comprehensive, and timely studies on school choice to inform policy and practice. The center is partly funded by a major grant from the Department of Education's Institute of Education Sciences. Vanderbilt is the lead institution in a cooperative agreement with national doctoral universities and research organizations. *vanderbilt.edu/schoolchoice*

The Owen Entrepreneurship Center brings together investors, entrepreneurs, and Vanderbilt business students to share innovative ideas. The OEC has spawned an active angel investor network and allows Owen students to have easy access to a ready-made network of successful entrepreneurs. *www2.owen.vanderbilt.edu/oec*

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 discussion of academic, social, and cultural issues. The center also engages in outreach to the community by sponsoring teacher training, lectures, and seminars. *vanderbilt.edu/rpw_center*

The Vanderbilt Bill Wilkerson Center is an integrated educational, research, and patient care center dedicated to serving individuals with otolaryngologic and communicative disorders. The center restores health and the ability to communicate to thousands of people every year through patient care, professional education, and clinical research, and encourages interdisciplinary collaboration in all of the speech, language, and hearing sciences and otolaryngology specialties. *vanderbilthealth.com/billwilkerson*

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 three hundred scientists from fifty departments, centers, and institutes across the campus, spanning a spectrum of study from molecules to the mind. Vanderbilt's neuroscience training programs foster the development of trainees to independent research scientists and educators, preparing them for careers in an integrative discipline. The undergraduate neuroscience major is an interdisciplinary program from several departments and schools providing a comprehensive background in biology, chemistry, mathematics, and physics as well as a strong foundation in the fundamentals of neuroscience. *braininstitute.vanderbilt.edu*

The Vanderbilt Initiative in Surgery and Engineering creates, develops, implements, and evaluates solutions to complex interventional problems. Physicians, engineers, and computer scientists work together to improve patient care. *vanderbilt.edu/vise*

The Vanderbilt Institute for Energy and Environment considers social, economic, legal, and technical aspects of environmental and energy problems to find solutions that are practical, achievable, and cost-effective. 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 is committed to advancing health and development in resource-limited regions with projects in Africa, Asia, Latin America, and the Caribbean. Vanderbilt faculty and staff provide leadership and expertise in establishing sustainable, scalable health development programs. *globalhealth.vanderbilt.edu*

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. VIIBRE's research and educational programs focus on an integrated multidisciplinary approach to microscale engineering and instrumentation for dynamic control and analysis of biological systems, i.e., instrumenting and controlling the single cell and small cell populations. *vanderbilt.edu/viibre*

The Vanderbilt Institute of Chemical Biology, a transinstitutional initiative between the College of Arts and Science and the School of Medicine, provides research and training in the application of chemical approaches to the solution of important biomedical problems. Particular strengths of the institute include analytical methodology and molecular imaging, cellular responses to chemical stress, drug discovery, enzyme and receptor chemistry, proteomics, structural biology, and chemical synthesis. The institute trains graduate students and has a rich assortment of core facilities that provide access to techniques and equipment at the frontiers of biomedical research. *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. Research encompasses students and faculty in various areas of nanoscience, with a special emphasis on interdisciplinary activities. *vanderbilt.edu/vinse*

The Vanderbilt Kennedy Center for Research on Education and Human Development is one of fourteen Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Centers supported in part by the Eunice Kennedy Shriver National Institute of Child Health and Human Development. It also is a University Center for Excellence in Developmental Disabilities Education, Research, and Service in the national network of sixty-seven such centers in every U.S. state and territory supported by the U.S. Administration on Developmental Disabilities. The mission of the Vanderbilt Kennedy Center is to facilitate discoveries and best practices that make positive differences in the lives of persons with disabilities and their families. We support and apply scientific research to bring better services and training to the community. The center is a university-wide institute, with interdisciplinary research programs addressing four broad areas: basic mechanisms of nervous system development, cognitive processes and interventions, mental health dysfunction and intervention, and life impact of disabilities on individuals and families. The center includes the Treatment and Research Institute for Autism Spectrum Disorders. Students have the opportunity to collaborate in research with mentorship from renowned Vanderbilt Kennedy Center scientists in Vanderbilt research training programs in developmental disabilities, developmental psychopathology, neurogenomics, neuroscience, vision science, and special education. Observation, practicum, and clinical experiences are available in the center's clinical programs and through the Vanderbilt Leadership Education in Neurodevelopmental Disabilities interdisciplinary training program for health professionals. ***kc.vanderbilt.edu***

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. *vuiis.vanderbilt.edu*

Other initiatives include:

Advanced Computing Center for Research and Education
African American Mental Health Research Scientist Consortium
American Economic Association
Arthritis and Joint Replacement Center
Bishop Joseph Johnson Black Cultural Center
Carpenter Program in Religion, Gender, and Sexuality
Center for Bone Biology
Center for Child Development
Center for Clinical Toxicology
Center for Cognitive Medicine
Center for Constructive Approximation
Center for Evaluation and Program Improvement
Center for Experiential Learning and Assessment
Center for Health Services Research at Vanderbilt
Center for Human Genetics Research
Center for Intelligent Systems
Center for Matrix Biology
Center for Molecular Neuroscience
Center for Neuroscience Drug Discovery
Center for Patient and Professional Advocacy
Center for Research on Rural Families and Communities
Center for Science Outreach
Center for Structural Biology
Center for the Study of Democratic Institutions
Center for Teaching
Center for U.S.-Japan Studies and Cooperation
Center in Molecular Toxicology
Center on School Choice, Competition, and Achievement
Child and Family Center
Classroom Organization and Management Program
Clinical Research Center
Clinical Trials Center
Cognitive Robotics Laboratory
The Curb Center for Art, Enterprise, and Public Policy
Digestive Disease Research Center
Division of Sponsored Research
eLab
English Language Center
Experimental Education Research Training (ExpERT) Program
Family-School Partnership Lab
Financial Markets Research Center
Freedom Forum First Amendment Center at Vanderbilt University
Informatics Center
Institute for Medicine and Public Health
Institute for Software Integrated Systems
Institute for Space and Defense Electronics
Intelligent Robotics Lab
Interdisciplinary Graduate Program in the Biomedical and Biological Sciences (IGP)
Interdisciplinary Program in Education Psychology (IPEP)
IRIS Center for Training Enhancements
Kelly Miller Smith Institute on Black Church Studies
Lamb Center for Pediatric Research
Laser Diagnostics and Combustion Group
Latin American Public Opinion Project
Law and Business Program

Margaret Cuninggim Women's Center
Mass Spectrometry Research Center
MIT Engineering Research Center for Bioengineering Educational Technologies
National Center on Performance Incentives
National Center on Quality Teaching and Learning
National Research Center on Learning Disabilities
Peabody Research Institute
Peabody Research Office
Poison Center
Principals' Leadership Academy of Nashville
Program in Quebec and Canadian Studies
Radiation Effects and Reliability Group
Research on Individuals, Politics, and Society
Skin Diseases Research Core Center
Study of Mathematically Precocious Youth
Susan Gray School
Tennessee Lions Eye Center
Tennessee Poison Center
Turner Center for Church Leadership and Congregational Development
Vanderbilt Addiction Center
Vanderbilt Breast Center
Vanderbilt Burn Center
Vanderbilt Center for Better Health
Vanderbilt Center for Environmental Management Studies
Vanderbilt Center for Human Nutrition
Vanderbilt Center for Integrative Health
Vanderbilt Center for Nashville Studies
Vanderbilt Center for Stem Cell Biology
Vanderbilt Diabetes Research and Training Center
Vanderbilt Engineering Center for Transportation Operations and Research (VECTOR)
Vanderbilt Executive Development Institute
Vanderbilt-Ingram Cancer Center
Vanderbilt-Meharry Center for AIDS Research
Vanderbilt Programs for Talented Youth
Vanderbilt Sleep Disorders Center
Vanderbilt Sports Concussion Center
Vanderbilt Transplant Center
Vanderbilt Vaccine Center
Vanderbilt Vision Research Center
Vanderbilt Voice Center
W. T. Bandy Center for Baudelaire and Modern French Studies

Life at Vanderbilt

The Ingram Commons and the First-Year Experience

All undergraduates spend their first year at Vanderbilt living on The Martha Rivers Ingram Commons. The Ingram Commons is a residential living and learning community of first-year students, residential faculty, and professional staff that enhances university education by creating opportunities for students to advance their intellectual, social, cultural, and personal talents both inside and outside the classroom. 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, a required orientation week for all first-year students. It extends from Move-In Saturday through a First Week of orientation and academic classes. During CommonVU, 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 upperclass 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 *http://commons.vanderbilt.edu.*

Transfer Student Transition Programs

Connect to Vanderbilt is Vanderbilt's mandatory orientation program for all transfer students. During Connect to Vanderbilt, new transfer students will learn more about life at Vanderbilt through programs and activities with university staff members, faculty, and upperclass students known as ConnectDores. Transfer students will receive orientation information in the mail during the summer before arriving at Vanderbilt. Further details can be found at *vanderbilt.edu/deanofstudents/transferstudents.php.*

The Honor System

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 education program on the Honor System at the beginning of the fall semester. Additional information about the Honor System is available on the Web at *studentorgs.vanderbilt.edu/HonorCouncil.*

Student Conduct

All students who take courses, live in residence halls, or otherwise participate in the activities of the university are within the jurisdiction of the university's judicial bodies, whether or not they are registered primarily at Vanderbilt. Policies governing student conduct are published in the *Student Handbook,* on the Web at *vanderbilt.edu/studentconduct,* or by other reasonable means of notification. The Office of Student Conduct and Academic Integrity and the Conduct Council have original jurisdiction over all matters of nonacademic misconduct involving students.

Residential Living

Vanderbilt University is a residential campus, and the residential experience is understood to be an integral part of a Vanderbilt education. This commitment to residential education is clearly expressed in the university's residential requirement: "All unmarried undergraduate students, except those who live at home with their families in Davidson County, 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 2011, more than 5,881 students lived on campus, comprising about 90 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 in different living spaces on the same floor but not in the same living space. Six officers from each fraternity and sorority may live in their fraternity or sorority houses.

TeleVU, the residence hall cable system, and ResNet, the residential data network, are available in each accommodation

on campus. Residents with personal computers can connect to ResNet for high-speed data services. In addition to existing Ethernet cable access to ResNet for each student, all residence halls provide wireless access to ResNet.

First-Year Students

First-year students live on The Martha Rivers Ingram Commons. The Ingram Commons comprises ten residential Houses, each led by a resident Faculty Head of House, 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.

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 loftable bed, chest, desk, chair, closet, and window blinds. Lounges, study rooms, seminar rooms, music practice rooms, and laundry facilities are located within The Ingram Commons.

Upperclass Students

Upperclass students live in eighteen residence halls in five residential areas on the central campus: Alumni Lawn, Carmichael Towers East and West, Branscomb Quadrangle, and Highland Quadrangle. All residence halls are air conditioned and are fully equipped with sprinklers for fire safety. Access to all residence halls is controlled with a card access system.

Alumni Lawn comprises Barnard/Vanderbilt halls, McGill Hall, Cole and Tolman halls, and McTyeire International House. Barnard and Vanderbilt halls house students in single and double rooms. Common area bath facilities are located on each floor. Study lounges, a television lounge, music practice rooms, and a laundry are located in the Barnard/Vanderbilt complex. McGill Hall houses approximately one hundred students in primarily single rooms with common 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 International House houses approximately one hundred students in single rooms with common bath facilities on each floor.

Upperclass students are also housed in the fourteen-story Carmichael Towers complex located on West End Avenue. Carmichael has two styles of living arrangements: (a) single and double rooms arranged in six-person suites with bath, kitchen, and common area and (b) single and double rooms arranged on halls, with common bath facilities on each floor. The Towers are complete with lounges, meeting rooms, laundry facilities, recreation areas, music practice rooms, a convenience store, and a Food Court.

Branscomb Quadrangle (Lupton, Scales, Stapleton, and Vaughn) offers two physical arrangements: (a) double rooms with a common bath on each floor and (b) suites of two double rooms connected by a half bath (with a common bath on each floor). The complex contains laundry facilities, lounges, study rooms, music practice rooms, and a quick-service restaurant and 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.

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.

The goals of the McTyeire International House language programs are to improve the fluency of McTyeire Hall residents in Chinese, French, German, Japanese, Russian, or Spanish languages, and to expand communication between international and American students by means of discussions, programs, and international coffees and festivals. An international interest hall is offered in English for students with interest in global citizenship. Space is available for ninety-six upperclass students in single rooms. Living in McTyeire carries a commitment to take a predetermined number of weekly meals in the McTyeire dining room.

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.

Barnard/Vanderbilt Hall is the site for the Vanderbilt Interest Project (VIP), Leadership Hall (LH), and Creative Campus Residential Experience (CCRE) programs. In the VIP program, rooms are set aside for groups of five to ten students who wish to pursue an outside-of-the-classroom experience with the support of a faculty adviser. Leadership Hall is designed to help students identify, develop, and practice their personal leadership styles while living and working together. The Creative Campus Residential Experience is for students interested in art, media, and design.

Residential Education Administration

The residential community at Vanderbilt is divided into seven geographic areas, each of which has a full-time professional living within the area. Upperclass and graduate or professional students serve as head residents and resident advisers in the residence halls. The dean of students, three associate directors, and nine area coordinators also live on campus. For more information, go to *vanderbilt.edu/ResEd*.

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.

Vanderbilt Student Government (VSG) plans programs and recreational and social activities, and advises the residential affairs administration on policy matters.

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 or hallmate requests are considered. Admission to the university does not guarantee assignment to a particular building, kind of room, or a particular roommate or hallmate.

Returning Upperclass Students. Returning unmarried upperclass students receive their housing assignments through a random selection process in the spring. A local hall selection is held for students who want to remain in the same room or to change rooms within the same residence hall. Eligibility for participation is determined by the director of housing assignments with advice from VSG. A specific number of current residents of a suite, apartment, or lodge must return in order to reserve that living space.

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 Education, 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.

The Commodore Card

The Commodore Card is the Vanderbilt student ID card. It can be used to access debit spending accounts, VU meal plans, and campus buildings such as residence halls, libraries, academic buildings, and the Student Recreation Center.

ID cards are issued at the Commodore Card Office, 184 Sarratt Student Center, Monday through Friday from 8:30 a.m. to 4:00 p.m. For more information, go to *vanderbilt.edu/cardservices*.

Eating on Campus

Vanderbilt Campus Dining's meal plan program, VU Meal Plans, gives students comprehensive dining options. Features include extended hours, multiple locations, variety, special events, Meal Money, Taste of Nashville (ToN) program, and Flex Meals.

Vanderbilt students living on campus are required to participate in VU Meal Plans. All first-year students are on the First-Year Meal Plan. Other students may purchase the 8, 14, or 19 Meal Plan.

There are a variety of options conveniently located across campus. The Ingram Commons dining hall, Rand Dining Center, Pub at Overcup Oak, Grins Vegetarian Café, Chef James Bistro, Last Drop Coffee Shop, Quiznos Towers and Quiznos Morgan, RoTiki, Engineering Café, and Blair Café all host the VU Meal Plans. Vanderbilt Campus Dining also operates six convenience stores including the Varsity Marketplace in Branscomb and Common Grounds at The Commons Center, which are open 24 hours and accept VU Meal Plans.

For more information on VU Meal Plans, go to *vanderbilt.edu/dining/vumealplans.php*. For more information on Vanderbilt Campus Dining, go to *vanderbilt.edu/dining*.

Barnes & Noble at Vanderbilt

Barnes & Noble at Vanderbilt, the campus bookstore located at 2525 West End Avenue, offers textbooks (new, used, digital, and rental), computers, supplies, Nook e-readers, dorm accessories, licensed Vanderbilt apparel, and best-selling books. Students can order online or in-store and receive course materials accurately, conveniently, and on time. The bookstore features extended hours of operation and hosts regular special events. Visitors to the bookstore café can enjoy Starbucks coffees, sandwiches, and desserts while studying. For more information, visit *vubookstore.com,* follow *twitter.com/BN_Vanderbilt,* find the bookstore on Facebook at *facebook.com/VanderbiltBooks,* or call (615) 343-2665.

Services to Students

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 University Registrar written requests that identify the record(s) they wish to inspect. 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 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.

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, addresses, telephone number, email address, student ID photos, date and place of birth, 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 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 to withhold directory information will remain in effect as long as the student continues to be enrolled, or until the student files a written request with the University Registrar to discontinue the withholding. To continue nondisclosure of directory information after a student ceases to be enrolled, a written request for continuance must be filed with the University Registrar during the student's last term of attendance.

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 University Registrar or to the Office of General Counsel.

Vanderbilt Directory

Individual listings in the online People Finder Directory consist of the student's full name, school, academic classification, local phone number, email address, local address, box number, and permanent address.

Student listings in the People Finder Directory are available to the Vanderbilt community via logon ID and e-password. Students may choose to make their online People Finder listings available to the general public (i.e., viewable by anyone with access to the Internet), to add additional contact information such as cell phone, pager, and fax numbers, or to block individual directory items.

Students who have placed a directory hold with the University Registrar will not be listed in the online directory. 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 Address Change link.

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 the Office of the Dean of Students, and in other areas of the university offer counseling and advising services to students:

Center for Student Professional Development
Equal Opportunity, Affirmative Action, and Disability Services Department
Faculty Advisers
Margaret Cuninggim Women's Center
Office of LGBTQI Life
Health Professions Advisers
International Student and Scholar Services
Office of Housing and Residential Education
Office of Leadership Development and Intercultural Affairs
Office of Student Activities
Office of the University Chaplain and Religious Life
Pre-Business Advisers
Pre-Law Advisers
Psychological and Counseling Center
Student Health Center
Teacher Education Adviser, Arts and Science
Teacher Licensure Office, Peabody College
Tutoring Services
Writing Studio

Center for Student Professional Development

The Center for Student Professional Development helps students develop their professional capabilities, define their identities, and build resilience as they prepare for employment in a rapidly changing world. The center works with undergraduate students to map out the knowledge and behaviors they need to be successful in their professional lives.

Any student in any class can benefit from center services which include professional development workshops, individual and group coaching sessions, industry career days/career fairs, campus recruiting events with targeted employers, and networking events with VU alumni. First-year students have access to trained peer coaches in our satellite office in The Ingram Commons and a variety of programs and activities led by center staff in the houses.

Center staff coach by industry cluster versus academic major, and students may choose to participate in one or more clusters as part of their exploration process. Each cluster has a dedicated coach, weekly email, industry-specific events, and internship and job postings. For more information about the center, visit *vanderbilt.edu/career.*

Services for Students with Disabilities

Vanderbilt is committed to the provisions of the Rehabilitation Act of 1973 and Americans with Disabilities Act as it strives to be an inclusive community for students with disabilities. Students seeking accommodations for any type of disability are encouraged to contact the Equal Opportunity, Affirmative Action, and Disability Services Department. Services include, but are not limited to, extended time for testing, assistance with locating sign language interpreters, audiotaped textbooks, physical adaptations, notetakers, and reading services. Accommodations are tailored to meet the needs of each student with a documented disability. The Equal Opportunity, Affirmative Action, and Disability Services Department also investigates alleged violations of Vanderbilt's nondiscrimination and anti-harassment policies. Specific concerns pertaining to services for people with disabilities or any disability issue should be directed to the Disability Program Director, Equal Opportunity, Affirmative Action, and Disability Services Department (EAD), PMB 401809, 2301 Vanderbilt Place, Nashville, Tennessee 37240-1809; phone (615) 322-4705 (V/TDD); fax (615) 343-0671; *vanderbilt.edu/ead.*

Psychological and Counseling Center

The Psychological and Counseling Center is a broad-based service center available to Vanderbilt students. Services include: (1) individual and group counseling and psychotherapy; (2) psychological and educational assessment; (3) programs such as assertiveness training; individual reading and study skills/test-taking techniques; body image, stress, and time management; group support programs for acquiring skills such as relaxation; (4) outreach and consultation; (5) special programming related to diversity issues; (6) campus speakers and educational programs. We provide assessment and treatment for psychiatric medication needs, bright light therapy for seasonal affective disorder, and biofeedback.

Eligible persons may make appointments by visiting the Psychological and Counseling Center or by calling (615) 322-2571. Services are confidential to the extent permitted by law. For more information, see the website, *vanderbilt.edu/pcc.* The site also contains self-reflection questions and information resources for counseling services.

Student Health Center

The Vanderbilt Student Health Center (SHC) in the Zerfoss Building is a student-oriented facility that provides routine and acute medical care similar to services rendered in a private physician's office or HMO.

The following primary care health services are provided to students registered in degree-seeking status: visits to staff physicians and nurse practitioners; routine procedures; educational information and speakers for campus groups; and specialty clinics held at the SHC. Most visits are free of charge, but there are small co-pays for some procedures, and for medications or supplies purchased at the Student Health Center.

These SHC primary care services are designed to complement the student's own insurance policy, HMO, MCO, etc., coverage to provide comprehensive care. Students are billed for any services provided outside the SHC or by the Vanderbilt University Medical Center.

The entire medical staff is composed of physicians and nurse practitioners who have chosen student health as a primary interest and responsibility.

The Zerfoss Student Health Center is open from 8:00 a.m. to 4:30 p.m., Monday through Friday, and 8:30 a.m. until noon on Saturday (except during scheduled breaks and summer). Students should call ahead to schedule appointments, (615) 322-2427. A student with an urgent problem will be given an appointment that same day, or "worked in" if no appointment is available. When the Student Health Center is closed, students needing acute medical care may go to the Emergency Department of Vanderbilt University Hospital. They will be charged by the VU Medical Center for Emergency Department services.

Students may also call (615) 322-2427 for twenty-four-hour emergency phone consultation, which is available seven days a week (except during summer and scheduled academic breaks). On-call Student Health professionals take calls after regular hours. Calls between 11:00 p.m. and 7:00 a.m. are handled by the Vanderbilt University Emergency Department triage staff. More information is available on the Web (*vanderbilt.edu/student_health*).

Immunization Requirements

The State of Tennessee requires certain immunizations for all students (undergraduate, graduate, and professional) on university campuses. As such, Vanderbilt University will block student registration for those who are not in compliance with the requirements. In order to accommodate students who have difficulty acquiring their records or needed vaccinations, incoming students not in compliance with the state laws will be enrolled for their first semester, but if they fail to comply within two months of enrollment, registration for the second semester will not be permitted.

The requirements include:

1. *Meningococcal meningitis vaccine (one injection)* for all incoming students living in on-campus housing.
2. *Varicella vaccine (two injections)* is required for all students who have not had documented chickenpox. Any waivers for this vaccine are very strict, and include only certain religious or medical exemptions that must be approved by the medical director of the Student Health Center. For more information regarding this waiver, please call the director's assistant at (615) 322-2254 or email *studenthealth@vanderbilt.edu.*

3. *Measles, mumps, and rubella (2 injections)* for all incoming students. Any waivers for this vaccine are very strict, and include only certain religious or medical exemptions that must be approved by the medical director of the Student Health Center. For more information regarding this waiver, please call the director's assistant at (615) 322-2254 or email *studenthealth@vanderbilt.edu.*

The Student Health Center requires all incoming students to complete a Health Questionnaire that includes further information regarding the state-mandated vaccinations, as well as information on other strongly recommended vaccinations.

Information regarding this Health Questionnaire is communicated to students by email after admission to Vanderbilt University. This Health Questionnaire must be returned to the Student Health Center with vaccination information.

Students should go to *vanderbilt.edu/student_health/link/immunization-requirements* in order to access more information regarding the immunization requirements. This site also contains links to the PDFs of the required forms.

All vaccines can be administered at either a private provider office or at the Student Health Center.

Student Injury and Sickness Insurance Plan

All degree-seeking students, with the exception of Division of Unclassified Studies (DUS) students, who are registered for 4 or more credit hours, are required to have health insurance coverage. The university offers a sickness and injury insurance plan that is designed to provide hospital, surgical, and major medical benefits. A brochure explaining the benefits of insurance coverage is available to students online at *gallagherkoster.com/vanderbilt*, in the Office of Student Accounts, or at the Student Health Center.

The annual premium is in addition to tuition and is automatically billed to the student's account. Coverage extends from August 12 until August 11 of the following year, whether a student remains in school or is away from the university. The online waiver indicating comparable coverage must be completed every year.

A student who does not want to subscribe to the insurance plan offered through the university must complete an online waiver form indicating other insurance information at *gallagherkoster.com/vanderbilt*. This process must be completed by August 1 for students enrolling in the fall for annual coverage. Newly enrolled students for the spring term must complete the online waiver process by January 2.

Family Coverage: Students who want to obtain coverage for their families (spouse, children, or domestic partner) may secure application forms by contacting the on-campus insurance representative, (615) 343-4688. Dependents can also be enrolled online at *gallagherkoster.com/vanderbilt* using a credit card. Additional premiums are charged for family health insurance coverage.

International Student Coverage

International students and their dependents residing in the United States are required to purchase the university's international student injury and sickness insurance. If you have other comparable insurance and do not wish to participate in the Student Injury and Sickness Insurance Plan offered through the university, you must complete an online waiver form (*gallagherkoster.com/vanderbilt*) indicating your other insurance information. This online waiver form must be completed no later than September 7 or you will remain enrolled in the plan offered by the university and will be responsible for paying the insurance premium. This insurance is required for part-time as well as full-time students. Information and application forms are provided through the Student Health Center.

Vanderbilt Child and Family Center

The Vanderbilt Child and Family Center supports the health and productivity of the Vanderbilt community by providing resource and referral services and quality early childhood education and care to the children of faculty, staff, and students. The center's website at *childandfamilycenter.vanderbilt.edu* provides information concerning child care, elder care, summer camps, tutoring services, and school-age child care. Parents in a Pinch and the Vanderbilt Sitter Service provide back-up care options for dependents of all ages and evening, night, and weekend care.

The Child Care Center serves children ages six weeks through five years. Applications for the waiting list may be downloaded from the website. The Family Center offers a monthly lunchtime series, Boomers, Elders, and More, and a caregiver support group.

Bishop Joseph Johnson Black Cultural Center

The Bishop Joseph Johnson Black Cultural Center (BJJBCC) represents one of Vanderbilt University's numerous efforts at acknowledging and promoting diversity. It does so by providing educational and cultural programming on the black experience for the entire Vanderbilt community. Dedicated in 1984, the center is named for the first African American student admitted to Vanderbilt University in 1953, Bishop Joseph Johnson (B.D. '54, Ph.D. '58).

One of the center's aims is to provide cultural programming. It sponsors lectures, musical performances, art exhibitions, films, and discussions on African and African American history and culture. The center also provides an office space for a scholarly journal, the *Afro-Hispanic Review,* edited by Vanderbilt faculty and graduate students.

Another of the center's aims is student support and development. The center provides meeting spaces for numerous Vanderbilt student groups, including the Black Student Alliance, Every Nation Campus Ministries, and Vanderbilt Spoken Word. The center works with students on a wide range of campus projects and community service opportunities. The center also serves as an informal haven for students, with plenty of opportunities for fellowship and food.

One additional aim of the center is community outreach and service. To this end, the center reaches out to civic and cultural groups. The BJJBCC facilitates tutoring and mentoring activities for young people from the Metro Nashville Public Schools, the YMCA, and other community agencies. VU students serve as tutors and mentors to young people in the Edgehill community. The center also helps promote student recruitment by hosting various pre-college groups.

The center houses a computer lab, a small library, a seminar room, an auditorium, a student lounge area, and staff offices. The center is open to all Vanderbilt students, faculty, and staff for programs and gatherings.

International Student and Scholar Services

International Student and Scholar Services (ISSS) fosters the education and development of nonimmigrant students and scholars to enable them to achieve their academic and

professional goals and objectives. ISSS provides advice, counseling, and advocacy regarding immigration, cross-cultural, and personal matters. ISSS supports an environment conducive to international education and intercultural awareness via educational, social, and cross-cultural programs.

ISSS provides immigration advising and services, including the processing of immigration paperwork, to more than 1,500 international students and scholars. The office works with admission units, schools, and departments to generate documentation needed to bring nonimmigrant students and scholars to the U.S. Further, ISSS keeps abreast of the regulations pertaining to international students and scholars in accordance with the Department of Homeland Security (Bureau of Citizenship and Immigration Services) and the Department of State. ISSS coordinates biannual orientation programs for students and ongoing orientations for scholars, who arrive throughout the year.

To help promote connection between international students and the greater Nashville community, ISSS coordinates the First Friends program, which matches international students with Americans both on and off campus for friendship and cross-cultural exchange. The weekly World on Wednesday presentations inform, broaden perspectives, and facilitate cross-cultural understanding through discussions led by students, faculty, and staff. International Education Week in the fall provides the campus with additional opportunities to learn about world cultures and to celebrate diversity. International Lens film series brings more than fifty international films to campus each year. ISSS provides a range of programs and activities throughout the year to address a variety of international student needs and interests. These programs include Vanderbilt International Volunteers and a selection of holiday parties. Southern Culture Series is an opportunity for students to experience Southern culture in nearby cities such as Memphis, Chattanooga, and Atlanta.

Margaret Cuninggim Women's Center

As part of the Office of the Dean of Students, the Margaret Cuninggim Women's Center welcomes all members of the Vanderbilt community to take part in our events and resources related to women's and gender topics. Our Gender Matters program offers co-curricular programming aimed to increase awareness of the influence that gender has in our lives; in addition, Gender Matters provides individual support and advocacy around a variety of issues, including gender stereotyping, gender equity, students with children, body image, eating disorders, pregnancy and reproduction, sexual health, and more. Project Safe is a support and resource referral hub for those affected by power-based personal violence (sexual assault, partner violence, stalking, and bias-related violence). Through the Green Dot violence prevention campaign, we also coordinate a campus-wide effort to involve all members of the Vanderbilt community in creating a safer campus. The Women's Center is open Monday through Friday, 8 a.m. to 5 p.m. and is located at 316 West Side Row. For more information, please call (615) 322-4843.

Office of LGBTQI Life

As a component of Vanderbilt's Office of the Dean of Students, 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. Visitors are invited to use our DVD library for resources around LGBTQI issues and culture. In addition, LGBTQI Life conducts tailored trainings and consultations for the campus and community and coordinates the Safe Zone Ally program. In all cases the office staff provides confidentiality. The Office of LGBTQI Life is located in the K. C. Potter Center, Euclid House, 312 West Side Row. For more information, please call (615) 322-3330.

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*.

Office of the University Chaplain and Religious Life

The Office of the University Chaplain 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 office 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.*

Parking and Vehicle Registration

Parking space on campus is limited. Motor vehicles operated on campus at any time by students, faculty, or staff must be registered with the Office of Traffic and Parking located in the Wesley Place garage. A fee is charged. Parking regulations are published annually and are strictly enforced. More information is available at *vanderbilt.edu/traffic_parking.*

Freshmen may not purchase a parking permit or park on campus at any time. Bicycles must be registered with the Vanderbilt University Police Department.

Vanderbilt University Police Department

The Vanderbilt University Police Department, (615) 322-2745, is a professional law enforcement agency dedicated to the protection and security of Vanderbilt University and its diverse community (*police.vanderbilt.edu*).

The Vanderbilt University Police Department comes under the charge of the Office of the Vice Chancellor for Administration. As one of Tennessee's larger law enforcement agencies, the Vanderbilt University Police Department 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.

The Police Department includes a staff of more than one hundred people, organized into four bureaus: Office of the Chief, Administrative Services, Support Services, and Patrol (Main Campus and Medical Center). 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, while on property owned by Vanderbilt, on adjacent public streets and sidewalks, and in nearby neighborhoods. When a Vanderbilt student is involved in an off-campus offense, police officers may assist with the investigation in cooperation with local, state, or federal law enforcement. The department also employs non-academy-trained officers called community service officers (commonly referred to as CSOs) who lend assistance 24/7 to the Vanderbilt community through services that include providing walking escorts, providing jump starts, and unlocking cars. For non-emergency assistance from a community service officer, dial (615) 322-2745 (2-2745 from an on-campus extension).

The Vanderbilt University Police Department provides several services and programs to members of the Vanderbilt community:

Vandy Vans—The Vanderbilt University Police Department administers the Vandy Vans escort system at Vanderbilt University. The Vandy Vans escort system provides vehicular escorts to designated locations on campus. The service consists of vans that operate from 5:00 p.m. to 5:00 a.m. GPS technology allows students to track Vandy Vans on their route via computer or mobile phone, and to set up text message alerts to let them know when a van will be arriving at their stop.

Stop locations were chosen based on location, the accessibility of a secure waiting area, and student input. Signs, freestanding or located on existing structures, identify each stop. A walking escort can be requested to walk a student from his/her stop to the final destination. A van is also accessible to students with mobility impairments. For complete information about the Vandy Vans service, including routes, stops, and times, please visit *vandyvans.com* or call (615) 322-2558.

As a supplement to the Vandy Vans van service, walking escorts are available for students walking to and from any location on campus during nighttime hours. Walking escorts are provided by VUPD officers. The telephone number to call for a walking escort is (615) 421-8888, or 1-8888 from a campus phone, after which, a representative from VUPD will be dispatched to the caller's location, or to a designated meeting point to accompany the caller to his or her destination.

Emergency Phones—Emergency telephones (Blue Light Phones) are located throughout the university campus, medical center, and 100 Oaks.

Each phone has an emergency button that when pressed automatically dials the VUPD Communications Center. An open line on any emergency phone will activate a priority response from an officer. An officer 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 to summon an emergency response on campus. Cell phone users should dial 911 for off-campus emergencies. Callers should be prepared to state the location from which they are calling.

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 necessary 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 lists and through the department's webpage, *police.vanderbilt.edu/crime-info/crime-alerts.*

Educational and Assistance Programs—The Community Relations Division of Vanderbilt University Police Department offers programs addressing issues such as sexual assault, domestic violence, workplace violence, personal safety, RAD (Rape Aggression Defense) classes, and victim assistance. VUPD 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, call (615) 322-2558 or visit *police.vanderbilt.edu.*

Additional information on security measures and crime statistics for Vanderbilt is available from the Vanderbilt University Police Department, 2800 Vanderbilt Place, Nashville, Tennessee 37212. Information is also available at *police.vanderbilt.edu.*

Annual Security Report—The *Vanderbilt University Annual Security 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 booklet is prepared with information provided by the Nashville Metropolitan Police Department, the Department of Student Athletics, Office of the Dean of Students, the Office of Housing and Residential Education, and the Vanderbilt University Police Department. 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 writing or calling the Vanderbilt University Police Department, 2800 Vanderbilt Place, Nashville, Tennessee 37212 or by telephone at (615) 343-9750. This report may also be obtained on the website at *police.vanderbilt.edu/annual-security-report.*

Extracurricular Activities

Student Governance

Vanderbilt Student Government (VSG) works in partnership with faculty and administration to represent student interests, concerns, and aspirations. In addition, the organization sponsors and coordinates activities and programming promoting student involvement and interaction with faculty. Student interests are addressed through the Senate and Committee structures within the organization. The committees are as follows: Academic Affairs Committee, Campus Life Committee,

Community Building, Outreach and Diversity Committee, Housing, Facilities, and Operations Committee, Student Health and Wellness Committee, and Student Services Committee. The Senate is made up of elected student officials representing the four undergraduate schools and the residential areas. Students are encouraged to become involved with VSG through each division and to participate in the student association or council of their own schools. CommonDores is an exciting new VSG program launched in collaboration with the Martha Rivers Ingram Commons (MRIC) to align VSG's residential governance structure with the university's current movement toward a universal college hall program. Incoming students will be able to get involved in student government within their houses within MRIC as well.

Active Citizenship and Service

Both active citizenship and service are vital components of the student experience at Vanderbilt. Nashville's vibrant urban neighborhoods provide ample possibility for students to make real-life connections to their studies, achieving both personal growth and meaningful action through work within local communities. The Office of Active Citizenship and Service (OACS) supports student civic engagement and advocacy throughout the Nashville area and encourages students to become involved in the wide array of active citizenship and service opportunities offered by nearly seventy student service organizations. These service experiences are many and varied, touching on topics such as health care, education, social enterprise, and international development. OACS affords students the chance not only to build relationships with other students and those in the greater Nashville community, but also encourages students to seek new information and critically analyze the nuanced concept of service, providing opportunities for volunteers to empower themselves and others in order to challenge inequities. The OACS motto, *Explore. Act. Reflect.*, celebrates Vanderbilt's mission of creative experimentation, open inquiry, and equality and compassion.

OACS programming includes active community engagement in the local area through a variety of service initiatives. The office also offers a living-learning summer internship program in Washington, D.C. (Vanderbilt Internship Experience in Washington—VIEW), and leads global experiential-learning opportunities around the world. Destinations included Quito, Ecuador, in summer 2013, and come 2014 projects will extend to London, England; Port Elizabeth, South Africa; Zanzibar, Tanzania; and a European Union–focused program in Brussels, Belgium.

Sarratt Student Center/Rand Hall

Sarratt Student Center (*vanderbilt.edu/sarratt*), named for former mathematics professor and dean of students Madison Sarratt, provides a variety of facilities, programs, and activities. The center houses a 300-seat cinema, art gallery, art studios, multicultural space, rehearsal rooms, large lounge spaces, large and small meeting spaces, and a courtyard. The facility is also home to Vanderbilt Card Services, Vanderbilt Student Communications, radio station, TV station, Last Drop Coffee Shop, and The Pub at Overcup Oak restaurant.

Connected to Sarratt Student Center is Rand Hall which houses Rand Dining Center, campus store, student-operated businesses, The Anchor (student organization space), a multipurpose venue, meeting and seminar rooms, plus large open lounge space.

The Vanderbilt Programing Board plans concerts, films, classes, speakers, receptions, gallery showings, and many other events throughout campus. The facilities information desk serves as a Ticketmaster™ outlet, handling ticket sales for most of the university's and Nashville's cultural events. The Dean of Students, Greek Life, Leadership, and Office of Active Citizenship and Service are located in Sarratt Student Center/Rand Hall.

Student Life Center

The Vanderbilt Student Life Center (*vanderbilt.edu/studentlifecenter*) is the university's community keystone. It is both the fulfillment of students' vision to have a large social space on campus and a wonderful complement to Sarratt Student Center.

The Student Life Center has more than 18,000 square feet of event and meeting-room space. The 9,000-square-foot Commodore Ballroom is one of the most popular spaces to have events on campus.

The center is also home to the Center for Student Professional Development, International Student and Scholar Services, Health Professions Advisory Office, Office of Honor Scholarships, Office of International Services, and Global Education Office.

Vanderbilt Student Communications, Inc. (VSC)

VSC has jurisdiction over campus radio stations, Vanderbilt Television, and undergraduate publications that are supported by the student activities fee. VSC functions chiefly to hire student leaders, supervise and audit financial records, maintain professional standards, and develop communications opportunities for students. VSC serves no programmatic or editorial function.

Among the divisions of the corporation are *The Vanderbilt Hustler,* the campus newspaper; InsideVandy.com, a student media website; the *Commodore* yearbook; WRVU, student radio; Vandy Radio, student radio; Vanderbilt Television; *The Vanderbilt Review,* annual literary review; *Orbis,* a liberal viewpoint publication; *The Torch,* a conservative viewpoint magazine; *The Slant,* a humor publication; *Vanderbilt Political Review,* a topical magazine; *The Liberator,* an African American community publication; Her Campus, a women's issue website; VUFinder, a documentary film team; and RVU Records, a recording studio.

Recreation and Sports

Physical education is not required for undergraduates, but almost two-thirds of the students participate in sport clubs, intramurals, and activity classes. Numerous classes are offered in racquetball, flycasting, aerobics, and lifeguarding/CPR/first aid, along with workshops offering rock climbing and kayaking.

The Student Recreation Center houses a 36 meter x 25 yard swimming pool; three courts for basketball, volleyball, and badminton; six racquetball and two squash courts; a weight and fitness room; a wood-floor activity room; a rock-climbing wall; an indoor track; a mat room; locker rooms; and a Wellness Center. An outside sand volleyball court and an Outdoor Recreation facility complement the center.

Men's and women's intramurals are popular on campus, and intramural teams are formed by residence halls and independent groups as well as by sororities and fraternities.

Forty sport clubs, most created at the request of students, provide opportunity for participation in such favorites as fencing, rugby, crew, and lacrosse. Southeastern Conference eligibility standards are not required for sport clubs.

The university recreation and athletic facilities include gymnasiums, indoor and outdoor tracks, an indoor tennis center and many outdoor hard courts, and two softball diamonds. The seven acres of playing fields are irrigated and maintained to assure prime field conditions, and they are lighted for night use.

Vanderbilt University broke ground on Tuesday, September 18, 2012, on a new Multipurpose Field House, additions to the Recreation Center, and renovation of recreation fields. The increase in space will greatly enhance the recreation experience for the university's students, faculty, staff, and alumni.

The Field House and Recreation Center additions will increase recreation space by 160,000 square feet. The total building (new and existing) will then be 289,000 square feet. The Field House will include a 120 yard turf field surrounded by a 300 meter track. The facility will be available for varsity teams, intramural sports, club sports, and informal recreation. Recreation Center additions will include more than 8,000 square feet of fitness room space, seven multipurpose rooms, and four-lane bowling alley. All intramural, sport club, and free exercise activities will increase dramatically. The hours of operation will expand as well.

All students pay a mandatory recreation fee which supports the facilities, fields, and programs (see the chapter on Financial Information).

For additional information, please see *vanderbilt.edu/campusrecreation.*

Varsity Athletics

Students interested in more highly competitive sports on the varsity level will find challenges in intercollegiate athletics sanctioned by the Southeastern Conference, the American Lacrosse Conference, and the NCAA. Women's teams compete in basketball, bowling, cross country, golf, lacrosse, soccer, swimming, tennis, 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 Lacrosse Conference. Women's bowling is independent. All other sports are in the Southeastern Conference.

Cultural Activities on the Campus

Working through volunteer student committees that plan and execute the programs, the Office of the Dean of Students 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 Asian New Year Festival by the Asian American Student Association, Diwali by Masala-SACE, and Café Con Leche by the Vanderbilt Hispanic Student Association.

The Office of Arts and Creative Engagement coordinates a weekly foreign film series in collaboration with academic departments and the Office of International Student and Scholar Services. Additional special film screenings are scheduled throughout the year, and an annual student film festival is held every spring semester.

Numerous campus galleries regularly exhibit contemporary artwork. Space 204, located in the Ingram Studio Arts Center, features the work of recognized artists as well as student work. Sarratt Gallery, the student-run exhibition space in Sarratt Student Center, holds monthly art receptions and gallery talks by visiting artists. Works from the university collection as well as special curated exhibits are on display in the gallery at the Bishop Joseph Johnson Black Cultural Center and the Fine Arts Gallery in Cohen Memorial Hall.

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.

The Vanderbilt Dance Program, housed in the dance studios at Memorial Gym, offers noncredit classes at all levels in a wide variety of dance styles, including ballet, modern, jazz, ballroom, hip hop, and ethnic dance. Master classes are given on a regular basis. The Vanderbilt Dance Program is home to five student dance companies. Each year auditions are held for Vibe, the student hip hop group; Vida, the student Latin dance company; Momentum, the student-run dance group; and Vanderbilt Dance Theatre, a company of students and community members. In addition, dance and drama auditions are held for the student-run Rhythm & Roots Performance Company in the fall. This group explores the use of performance art as an expression of social complexities and as a catalyst for social change. The student dance companies schedule performances throughout the year, and the Vanderbilt Dance Program sponsors a concert at the end of spring semester.

The Sarratt Art Studios host noncredit art classes in pottery, photography, jewelry, drawing, painting, fiber arts, mosaics, and stained glass. Classes and weekend workshops are taught by Nashville professional artists. The studios are located on campus in the Sarratt Student Center.

The Vanderbilt Performing Arts Council represents more than thirty student groups devoted to providing opportunities for performers to showcase their talent. Student organizations that schedule annual performances range from comedy groups such as Tongue N' Cheek to the hip hop–based Spoken Word to the popular Juggling and Physical Arts Club 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, and the Gertrude Vanderbilt and Harold S. Vanderbilt Visiting Writers program.

In fall 2009, the Office of the Dean of Students initiated the first residential living-learning experience devoted to the arts. Creative Campus Residential Fellows is a collaborative program sponsored by the Office of Arts and Creative Engagement and the Curb Center for Art, Enterprise, and Public Policy. The program integrates arts into campus life and contributes to a culture where students, faculty, and staff interact to build synergy in the arts.

Intercultural Affairs and Advocacy

The Office of Intercultural Affairs and Advocacy supports cultural student organizations and diversity programming across the campus community. Membership in all organizations is open to any student who has an interest in learning about diverse cultures. The organizations include, but are not limited to, the Asian American Student Association, the Caribbean Student Association, Masala-SACE (South Asian

Cultural Exchange), the Muslim Student Association, the Vanderbilt Association of Hispanic Students, and the Middle Eastern Student Association, and the African Student Union. IAA is a resource for students, faculty, and staff who have an interest in diversity and inclusion issues and programming. IAA operates in the Dean of Students division and is located in 310 Sarrratt Student Center.

Office of Student Leadership Development

The Office of Student Leadership Development is designed to serve as a conduit for leadership programming and a resource hub for students, faculty, and staff. The office believes in developing visionary, goal driven, and action oriented student leaders. Students who participate in leadership programs will be accountable to others, collaborative and team oriented, effective communicators, and service-oriented; practice moral decision making; and embrace diversity and inclusion.

The office sponsors signature leadership programs during the year, but also works closely with all areas within the Dean of Students 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.

Admission

ADMISSION as a freshman to Vanderbilt represents a selection based on the academic and personal records of applicants. All available information is considered, including secondary school academic record, evidence of academic maturity and independence, extracurricular activities, contributions to the school and community, and scores on standardized tests.

The admission process is designed to select a diverse student body with high standards of scholarship and personal character with serious educational aims. Policies that govern the selection process have been set by the dean of undergraduate admissions. Please refer to the nondiscrimination statement on the inside front cover.

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. Admissions staff are available to answer questions, arrange campus tours, provide additional information about degree programs, and link visitors with appropriate campus offices and members of the university community.

Academic Preparation

A candidate for admission must present a transcript of work from an accredited secondary school and the recommendation of the guidance counselor or the head of school. The high school record must show at least fifteen academic units of college preparatory work (a unit is a year's study in one subject), with grades indicating intellectual ability and promise. The pattern of courses should show purpose and continuity and furnish a background for the freshman curriculum offered at Vanderbilt.

Specific entrance requirements are as follows:

College of Arts and Science. At least 4 units of English, 2 units of algebra, 1 unit of plane geometry, 2 units of one foreign language, 2 units of science, and 2 units of social science are required. Additional units of mathematics, foreign language, science, and social science are strongly recommended.

Applicants of ability and achievement who do not entirely meet these requirements may request special consideration. Students without the requisite units in English or mathematics may be admitted on condition that they make up the missing work prior to their first registration in the College of Arts and Science. Students without the requisite two years in foreign language must enroll during their first semester in a foreign language course and must remain continuously enrolled until they successfully complete a full year of one foreign language. They must complete this requirement before the end of their fourth semester in the College of Arts and Science.

Blair School of Music. At least 4 units of English, 2 units of algebra, 1 unit of geometry, 1 unit of history, 2 units of a foreign language, and 1 unit of science are required. Students with fewer units may be offered admission but must complete the missing work at Vanderbilt.

Audition/Portfolio. Applicants to the Blair School performance and musical arts degree programs are required to audition on their primary instrument (or in voice). Auditions will be held at the school on December 7, 2013; January 24/25, 2014; February 7/8, 2014; and February 21/22, 2014. Students seeking admission to the composition/theory degree program must interview and present a portfolio of original compositions. Voice students are required to submit a video audition for pre-screening by January 1 or November 1 for Early Decision. See instructions for pre-screening on the Blair website. All students are required to audition; please see the Blair website for instructions.

School of Engineering. At least 4 units of English, 2 units of algebra, 1 unit of geometry, 1 unit of trigonometry, and 4 units of science, including physics, are required. Two units of foreign language and 1 unit of history are also desirable.

Peabody College. It is strongly recommended that applicants have at least 4 units of English, 2 units of algebra, 1 unit of geometry, 2 units of science, and 1 unit of history.

Application Procedure

1. Vanderbilt accepts only the Common Application for admission. Applications for admission are available online at *commonapp.org*. Regular Decision applicants must submit required parts of the application by January 1 for consideration for admission for the following fall semester. Certain scholarships require additional application materials and may have earlier deadlines. Interested students should contact the Office of Undergraduate Admissions for more information. Applications for admission submitted after January 1 will be considered, provided space is available. Admission decisions will be mailed by April 1.
2. Applicants must arrange for their high school to send an official transcript of their record to the Office of Undergraduate Admissions.
3. Applicants are responsible for having formal reports of their standardized test scores sent to Vanderbilt by the testing agency. Score reports appearing on official high school transcripts are acceptable for evaluation purposes, but official score reports are required.
4. The $50 application fee is not refundable. A nonrefundable matriculation deposit of $400 is required upon acceptance of the offer of admission. This deposit is credited to the student's account, and the amount is deducted from the bill for the first semester. Students with financial hardship may request a waiver of these fees.

Early Decision Plans

These plans are designed to give an early admission decision to well-qualified students whose first choice is Vanderbilt. In order to apply under the Early Decision plans, the student must complete the following steps:

1. Complete all parts of the application for admission and return it with the appropriate Early Decision plan box checked and the $50 nonrefundable application fee. November 1 is the postmark deadline for Early Decision I, and January 1 is the postmark deadline for Early Decision II.
2. Sign the Early Decision Agreement, stating that Vanderbilt is your first choice, affirm your intention to enroll at Vanderbilt if offered admission under the Early Decision plan, and agree to withdraw applications to other colleges if admitted. Your parent and guidance counselor must also sign this statement.

3. Send an official high school transcript through the junior year to the Office of Undergraduate Admissions, along with a list of courses being taken and to be taken in the senior year.
4. Send Vanderbilt the official scores from the SAT Reasoning Test and/or the ACT. Scores appearing on official high school transcripts are acceptable for evaluation purposes, but official score reports are required.
5. Blair School of Music applicants must audition or submit a portfolio by early December for Early Decision I and by late January for Early Decision II.

Applicants under the Early Decision plans may be admitted, denied admission, or deferred for later consideration in competition with all applicants at the regular decision process. Applicants who are deferred are encouraged to submit additional test scores, seventh semester grades, and any other information that may be helpful.

Admission without Diploma

Certain students who are recommended by their high school principals and are considered by the Office of Undergraduate Admissions to be ready for college work may be admitted following completion of their junior year in high school. This program of admission without high school diploma is intended to serve applicants of unusual promise who will benefit from beginning their college career a year early. Application should be made by January 1 of the junior year in high school. Additional examinations may be required. Other criteria will also be considered, such as maturity and motivation.

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 freshmen 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. Entering students who have taken the British G.C.E. "A" level examinations, the Advanced International Certificate of Education (AICE), the Cambridge Pre-U diploma, or similar tests, such as the French *baccalauréat,* the German *abitur,* or the Swiss *maturité* examinations, may submit copies of the syllabi and an official report of the grades earned for evaluation for credit by the relevant departments. Appropriate documentation should be submitted to the Office of Undergraduate Admissions before matriculation at Vanderbilt. To qualify for credit for AICE examinations, students must have achieved an *A* or *B* thereon.

Advanced Placement Credit Policy

Advanced Placement Examination grades accepted for advanced placement with credit by the various departments at Vanderbilt are listed below.

AP Exam	AP Score	Vanderbilt Course or Credit Equivalent	Credit Hours
Art			
Art History	4 or 5	HART 110: History of Western Art I	3
		HART 111: 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	4 or 5	CS 101: Programming & Problem Solving	3
Economics			
Macroeconomics	4 or 5	ECON 100: Principles of Macroeconomics	3
Microeconomics	4 or 5	ECON 101: Principles of Microeconomics	3
English			
English Language & Composition	4 or 5	ENGL 120W: Intermediate Composition	3
English Literature & Composition	4 or 5	ENGL 102W: Literature and Analytical Thinking	3
		ENGL 105W: Drama: Forms and Techniques	3
Government and Politics			
Government & Politics: Comparative	4 or 5	PSCI 101: Introduction to Comparative Politics	3
Government & Politics: United States	4 or 5	PSCI 100: 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 211: Intermediate Chinese I	5
Chinese Language and Culture	5	CHIN 212: Intermediate Chinese II	5
French Language	4 or 5	FREN 103: Intermediate French	5
		FREN 201W: French Composition and Grammar	3
French Literature	4 or 5	FREN 103: Intermediate French	5
		FREN No Equivalent: French Literature	3
German Language	4 or 5	GER 103: Intermediate German I	3
		GER 104: Intermediate German II	3
Italian Language and Culture	4 or 5	ITA 200: Italian Journeys	3
		ITA 201W: Grammar and Composition	3
Japanese Language & Culture	4	JAPN 211: Second-Year Modern Japanese I	5
Japanese Language & Culture	5	JAPN 212: Second-Year Modern Japanese II	5
Latin Literature	4 or 5	LAT 104: Intermediate Latin: Poetry	3
Latin: Vergil	4 or 5	LAT 104: Intermediate Latin: Poetry	3
Spanish Language or Literature	4	SPAN 104: Intermediate Spanish	5
Spanish Language or Literature	5	SPAN 104: Intermediate Spanish	5
		SPAN 202: Spanish for Oral Communication through Cultural Topics	3

Mathematics

Calculus AB	5	MATH 155a: Accelerated Single-Variable Calculus I	4
Calculus BC & AB Subscore	3 & 5	MATH 155a: Accelerated Single-Variable Calculus I	4
Calculus BC	4 or 5	MATH 155a: Accelerated Single-Variable Calculus I	4
		MATH 155b: Accelerated Single-Variable Calculus II	4

Music

Music Theory	5	MUSC 120a: Survey of Music Theory	3

No course credit awarded for music majors

Psychology

Psychology	5	PSY 101: General Psychology	3

Sciences

Biology	4 or 5	BSCI 100: Biology Today	3
		BSCI 101a: Biology Today Laboratory	1
Chemistry	5	CHEM 102a: General Chemistry	3
		CHEM 104a: General Chemistry Laboratory	1
		CHEM 102b: General Chemistry	3
		CHEM 104b: General Chemistry Laboratory	1
Environmental Science		No Credit	
Physics B	5	PHYS 110: Introductory Physics	3
		PHYS 111: Introductory Physics Laboratory	1

No credit awarded for engineering students; not to be awarded if student also has credit for Phys 116a/118a or Phys 116b/118b

Physics C: Electricity & Magnetism	5	PHYS 116b: General Physics II	3
		PHYS 118b: General Physics Laboratory II	1
Physics C: Mechanics	5	PHYS 116a: General Physics I	3
		PHYS 118a: General Physics Laboratory I	1

Statistics

Statistics	4 or 5	MATH 127a: Probability and Statistical Inference	3

No credit awarded for engineering students

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, up to a maximum of 8 hours in any subject area. 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. No form of advanced placement credit can be used in fulfillment of the Achieving Excellence in Liberal Education (AXLE) requirements for students in the College of Arts and Science.

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 Dean's Office for evaluation by the appropriate departments. The amount of credit that may be awarded is subject to the same limitations as credit for Advanced Placement.

IB Certificate Subject	IB Score	Vanderbilt Course or Credit Equivalent	Credit Hours
Biology (Standard/Higher)	6 or 7	BSCI 100: Biology Today	3
		BSCI 101a: Biology Today Laboratory	1
Chemistry (Standard)	6 or 7	CHEM 101a: Introductory Chemistry	3
		CHEM 100a: Introductory Chemistry Laboratory	1
		CHEM 101b: Introductory Chemistry	3
		CHEM 100b: Introductory Chemistry Laboratory	1
No credit awarded for engineering students. Not to be awarded if student also earns credit for Chem 102ab/104ab			
Chemistry (Higher)	6 or 7	CHEM 102a: General Chemistry	3
		CHEM 104a: General Chemistry Laboratory	1
		CHEM 102b: General Chemistry	3
		CHEM 104b: General Chemistry Laboratory	1
Economics (Higher)	6 or 7	ECON 100: Principles of Macroeconomics	3
		ECON 101: Principles of Microeconomics	3
English (Standard)	6 or 7	ENGL 100: Composition	3
English (Higher)	6 or 7	ENGL 102W: Literature and Analytical Thinking	3
		ENGL 105W: Drama: Forms and Techniques	3
French (Standard)	6 or 7	FREN 103: Intermediate French	5
French (Higher)	6 or 7	FREN 103: Intermediate French	5
		FREN No Equivalent: Elective Credit	3
History (Higher)	6 or 7	HIST No Equivalent: History Elective	3
Japanese (Standard)	6 or 7	JAPN 211: Second-Year Modern Japanese I	5
		JAPN 212: Second-Year Modern Japanese II	5
Japanese (Higher)	6 or 7	JAPN 241: Third-Year Japanese I	3
		JAPN 242: Third-Year Japanese II	3
Latin (Standard)	6 or 7	LAT 103: Intermediate Latin: Prose	3
Latin (Higher)	6 or 7	LAT 103: Intermediate Latin: Prose	3
		LAT 104: Intermediate Latin: Poetry	3
Mathematics (Standard)	6 or 7	MATH 140: Survey of Calculus	4
		MATH 127a: Probability and Statistical Inference	3
No credit will be awarded for Math 140 if credit for 155a is also awarded. No credit awarded for engineering students.			
Mathematics (Higher)	6 or 7	MATH 155a: Accelerated Single Variable Calculus I	4
		MATH 127a: Probability and Statistical Inference	3
		MATH No Equivalent: Math elective credit	1
No credit for Math 127a for engineering students. No credit will be awarded for Math 140 if credit for 155a is also awarded.			
Music (Standard)	6 or 7	MUSL 140: Intro Music Literature (MUSL 140 does not count toward a music major)	3
Music (Higher)	6 or 7	MUSL No Equivalent (may count toward a music major)	3
Physics (Standard)	7	PHYS 110: Introductory Physics	3
No credit awarded for engineering students. No credit if student also has credit for Phys 116a/118a or Phys 116b/118b			
Physics (Higher)	7	PHYS 116a: General Physics I	3
		PHYS 118a: General Physics Laboratory I	1
		PHYS 116b: General Physics II	3
		PHYS 118b: General Physics Laboratory II	1
Psychology (Standard/Higher)	6 or 7	PSY 101: General Psychology	3
Russian (Standard)	6 or 7	RUSS 102: First-Year Russian	5

Russian (Higher)	6 or 7	RUSS 203: Second-Year Russian	3
		RUSS 204: Second-Year Russian	3
Spanish (Standard)	6 or 7	SPAN 104: Intermediate Spanish	5
Spanish (Higher)	6 or 7	SPAN 104: Intermediate Spanish	5
		SPAN 202: Spanish for Oral Communication through Cultural Topics	3
Visual Arts (Standard)	6 or 7	ARTS No Equivalent: Visual Arts	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 during their junior or senior year in high school through dual enrollment or concurrent enrollment programs, or during summers prior to their offer of admission to Vanderbilt, must report such work to the Office of Undergraduate Admissions if they wish it to be reviewed for credit. At the student's request, the dean of the appropriate undergraduate school will determine whether such work may be credited toward the Vanderbilt degree. Vanderbilt credit will not be rewarded for college courses taken to meet the minimum entrance requirements of 15 high school units.

The question of credit at Vanderbilt must be settled in advance of the student's final registration.

Credit will be awarded only if:

1. A course is regularly offered by an accredited two-year or four-year college or university;
2. The teacher was a regular faculty member of that college or university; and
3. A majority of the students in the course were candidates for a degree at that college or university.

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 approximately one hundred countries. The university welcomes the diversity international students bring to the campus and encourages academic and social interactions at all levels.

Admission. Students from other countries are required to complete all the admission requirements of the university. Applicants whose first language and language of instruction are not English are required to submit the results of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing Service (IELTS). Minimum scores for Vanderbilt are 100 (Internet-based exam), 230 (computer-based exam), or 7.0 on the IELTS. You may access information regarding the TOEFL exam, including registration and sample tests, at *ets.org/toefl*. Inquiries and requests for application forms should be addressed to TOEFL, Box 6151, Princeton, New Jersey 08541-6151, USA.

English Instruction. Entering students who are not proficient in English should consider enrolling in an intensive English language program before beginning academic studies. In some cases the course may be required. Vanderbilt offers such a program at the English Language Center (ELC). Academic studies for credit may begin after recommendation by ELC in consultation with the student's academic adviser. For information about Vanderbilt's English language program, write to English Language Center, Vanderbilt University, Peabody #595, 230 Appleton Place, Nashville, Tennessee 37203-5721, USA; *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 to be employed. International students may work up to twenty hours per week on campus. Students may be allowed to work off campus only under special circumstances. 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. To apply for need-based financial aid, students are required to submit the College Scholarship Service (CSS) Financial Aid Profile. Admission for international students is "need-aware"; the larger the amount of financial aid needed, the greater the competition for admission.

Student Injury and Sickness Insurance. International students are automatically enrolled in the Vanderbilt

University–approved International Student Injury and Sickness Insurance Plan. The student may waive this requirement if comparable coverage is provided by an alternate insurance plan and will be effective throughout the policy year. Information concerning the limits, exclusions, and benefits of this insurance coverage may be obtained from Student Health Services or from International Student and Scholar Services.

Information. Assistance in nonacademic matters before and during the international student's stay at Vanderbilt is provided by International Student and Scholar Services, Vanderbilt University, Student Life Center, 310 25th Avenue South, Suite 103, Nashville, Tennessee 37240, USA; *vanderbilt.edu/isss.*

Transfer Students

Admission of transfer students from both inside and outside the university is competitive, with the primary criterion being academic merit. The priority deadline for transfer admission is March 15. It is our practice to offer transfer admission for the fall semester only.

To be considered for transfer admission to Vanderbilt, applicants must submit the Common Application for admission and satisfy the following conditions:

1. Meet all freshman admission requirements, including results from either the SAT Reasoning Test and/or the ACT;
2. Be in good standing at the institution last attended;
3. Provide an official secondary school transcript;
4. Provide official transcripts from each college attended;
5. Submit academic recommendations from college/university instructors;
6. Respond to application essay questions;
7. Agree to attend a Vanderbilt undergraduate program for at least four semesters (at least 60 hours) of full-time work. Two of these semesters (at least 30 hours) must be within the senior year.

Work presented for transfer must be from an accredited college and is subject to evaluation in light of the degree requirements of this university.

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. Transfer students must comply with university standards. An audition (or, in the case of composition/theory applicants, the presentation of a portfolio and an interview) is required and is of major importance in the evaluation of the application. 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 College of Arts and Science. Transfer students must complete at least 63 hours at Blair.

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

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.

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. To be eligible for transfer, students must meet the requirements of the school they wish to enter.

Applications are available on 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, one semester of calculus-based physics, and (for transfer to biomedical engineering or chemical engineering) two semesters of college chemistry. 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 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 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 two weeks before the first day of classes for the term they wish to attend. Requests for exceptions to the admission criteria must be addressed in writing to the vice provost for enrollment and

dean of admissions, 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 student activity, recreation center, or health insurance fees, and do not have access to recreation or student health services. Those enrolled in the division as full-time students (particularly visiting students or others living in campus residence halls) may petition to be allowed to purchase these 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 Student Recreation 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 the registrar of each school. Students may also go to *vanderbilt.edu/summersessions* 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 "total immersion" 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/summersessions.*

Financial Information

TUITION for undergraduates for the 2013/2014 academic year is $41,928 ($20,964 a semester). A $650 laboratory equipment fee 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). A full-time undergraduate student takes 12 to 18 hours. Students taking more than 18 hours per semester are charged $1,747 per hour for each extra hour. Students who, for approved reasons, enroll for fewer than 12 hours are charged $1,747 per hour, with a minimum tuition charge of $1,747 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.

Rates for tuition and fees are set annually by the Board of Trust and are subject to review and change without further notice.

Estimate of Expenses

Basic expenses (excluding travel and personal expenses) should be approximately $59,823 a year, itemized as follows:

Tuition (2013/2014)	$41,928
Room and board (estimate)	14,094
Books and supplies (estimate)	1,370
Student activities and recreation fees (estimate)	1,050
Hospitalization insurance	1,381

Other Academic Fees

Application fee	$50
First-Year Experience fee (year)	690
Engineering laboratory fee (year)	650
Late registration fee	30
Senior-in-absentia minimum semester tuition charge (hourly rate)	1,747
Special examination fee	5
Credit by departmental examination fee	50
Transcript fee (one time only)	30

The change period of registration extends from the second through the sixth day of classes.

Late registration fees are charged to students who should have registered by the published dates and did not. Registration dates for each school are shown in the *Schedule of Courses.*

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 14 for the fall semester and January 2 for the spring semester. All 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, cancellation of V-Net (long-distance telephone) access for campus residents may result, and additions to Commodore Cash accounts may be prohibited. 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 SM 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 the e-bill website and select the "My Profile" tab to access the "Invite Other Payer" option. Students should communicate their Commodore ID (nine-digit number beginning with 000), to the invited payers, as it will be needed to complete their process of gaining access to the account.

Once a student generates an invitation from the e-bill website, an email will be sent to the parent or invited payer with an Activation ID number and the link to enroll. The parent/invited payer will need to enter the student's Commodore ID to complete the process. Tutorials are located online at *vanderbilt.edu/stuaccts/ebill.html* under "Inviting Others."

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 New Vanderbilt E-Bill Is Now Available" 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*.

Refunds of Tuition and Housing Charges

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 in accordance with the established schedule below. 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 in accordance with the same schedule. Fees are nonrefundable.

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.

Fall 2013 Withdrawal/Refund Schedule

Week 1	August 21–August 28	100%
Week 2	August 29–September 4	90%
Week 3	September 5–September 11	85%
Week 4	September 12–September 18	80%
Week 5	September 19–September 25	75%
Week 6	September 26–October 2	65%
Fall Break	October 3–October 4	65%
Week 7	October 5–October 11	60%
Week 8	October 12–October 18	50%
Week 9	October 19–October 25	45%
Week 10	October 26–November 1	40%

No refund after November 1, 2013

Spring 2014 Withdrawal/Refund Schedule

Week 1	January 6–January 13	100%
Week 2	January 14–January 20	90%
Week 3	January 21–January 27	85%
Week 4	January 28–February 3	80%
Week 5	February 4–February 10	75%
Week 6	February 11–February 17	65%
Week 7	February 18–February 24	60%
Week 8	February 25–February 28	55%
Spring Break	March 1–March 9	55%
Week 9	March 10–March 17	50%
Week 10	March 18–March 24	40%

No refund after March 24, 2014

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 14, 2013. Payment for the spring semester is due by January 2, 2014. 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 ten monthly installments, interest free, by enrolling in the VANDYPlan, administered by Sallie Mae. The deadline to enroll in the VANDYPlan is July 15, 2013 (payments begin May 15). Enroll at *TuitionPayEnroll.com/Vanderbilt*.

The current estimated charges for the 2013/2014 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.

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

Students will not be permitted to attend any classes for any semester if there is an unpaid balance. Transcripts (official or unofficial) will not be released until the account has been paid. Diplomas of graduating students will not be released until all indebtedness to the university is cleared.

Activities and Recreation Fees and Identification Card

All degree-seeking undergraduate students pay activities and recreation fees that entitle 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 Student Recreation 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.

The student activities fee and the student recreation fee will be waived automatically if the undergraduate student is a part-time student registered for four or fewer credit hours. Part-time undergraduate students wishing to use the Student Recreation Center will be required to pay the Student Recreation Center membership fee for access. For more information, please see *vanderbilt.edu/recadmin.*

Transcripts

Official academic transcripts are supplied by 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 men and women and among individual chapters. New members can expect to pay higher dues their first semester. Many chapters participate in the Facility Management Program, and members pay $305 each semester, charged to their student account, for the maintenance and upkeep of the chapter house. Dues range from $750 to $1,300 for Interfraternity Council (IFC) men, $700 to $1,200 for Panhellenic women, and $125 to $500 for National Pan-Hellenic Council (NPHC) men and women per semester. 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.

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.com*. The student must submit the FAFSA and PROFILE no later than February 5 of the senior year in high school. Further information regarding the application process is available from the Office of Student Financial Aid and Undergraduate Scholarships at *vanderbilt.edu/financialaid*.

Students must reapply for financial aid each year by submitting a CSS PROFILE and the FAFSA by April 15 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 College Scholarship Service PROFILE. Students may complete the CSS PROFILE online at *collegeboard.com*. Early Decision I applicants should complete the CSS PROFILE no later than November 5 of the senior year in high school. Early Decision II applicants should complete the CSS PROFILE process no later than January 5 of the senior year in high school. Students will receive an estimate of their eligibility for financial aid with their offer of admission. The student must then file the FAFSA no later than February 5. The original estimated aid award will be confirmed or revised, as appropriate, after the FAFSA and CSS PROFILE together are reviewed by the Office of Student Financial Aid and Undergraduate Scholarships.

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 who demonstrates financial need is eligible to participate. This aid may be renewed annually by students who continue to qualify on the basis of financial need, 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 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 Perkins Loan Program
- Federal Direct Loan Program
- Federal Direct Parent Loan for Undergraduate Students (PLUS)

In addition to the federal student financial aid programs, Vanderbilt administers a number of need-based institutional scholarship, grant, and loan programs, some of which are described briefly in the Scholarship section of this catalog. University general sources of need-based assistance and loan funds available to students in all schools are listed.

Satisfactory Academic Progress Standards

Satisfactory Progress Standards—Institutional Aid Programs

Institutional need-based aid programs, including Vanderbilt need-based grant and scholarship assistance, are awarded for the academic year to eligible undergraduate students on the basis of financial need plus maintaining a minimum grade point average and academic progress. The minimum required cumulative GPA for renewal of university assistance programs is a 2.0 after the freshman year, but we realistically anticipate that the level of academic performance for each student will be higher. In addition, for renewal, the student must be making satisfactory progress toward his/her degree. The academic progress and performance of all financial aid applicants is reviewed by the Office of Student Financial Aid and Undergraduate Scholarships at the end of each academic year and satisfactory progress will be verified by the Financial Aid staff before an award of institutional funds is approved for the subsequent year. For students who are making satisfactory progress, the award commitment for the subsequent year will normally then be made for the entire subsequent 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 2.0 GPA, the financial aid commitment will be made for one subsequent semester only, and further review will be undertaken at the end of that subsequent semester. After that subsequent semester, institutional aid program eligibility will be terminated for students who fail to complete the required credit hours within the specified time frame and/or fail to maintain the minimum 2.0 GPA required for institutional aid programs. (See Financial Aid Probation.)

For undergraduate students, a maximum time frame of four years (eight semesters or its equivalent) of full-time enrollment is established for attainment of their baccalaureate degree when determining eligibility for the receipt of funds through institutional financial aid programs. Full-time undergraduate students will be required to progress to sophomore, junior, and senior standing in accordance with the requirements of each of the undergraduate schools. If students fail to progress as required, they will not be eligible to receive further aid and will be notified that they may appeal for reinstatement of institutional aid funds in any following/subsequent semester **after** the number of required credit hours to advance to the next higher level is achieved and/or their overall GPA has been raised to the minimum 2.0 level. It will be the responsibility of the student to contact the Office of Student Financial Aid and Undergraduate Scholarships to request the reinstatement of his/her institutional aid.

Satisfactory Progress Standards—Federal Title IV Aid Programs

The academic progress and performance of all Federal Title IV financial aid recipients will be reviewed by the Office of Student Financial Aid and Undergraduate Scholarships at the

end of each academic year and satisfactory progress will be verified by the Financial Aid staff before an award of Federal Title IV funds will be approved for the subsequent year. For students who are making satisfactory progress, the award commitment for the subsequent year will normally be for the entire academic year. For students who fail to complete the required credit hours within the specified time frame and/or fail to maintain the minimum GPA required by their undergraduate school, Title IV eligibility will be suspended. Students may appeal this suspension in writing, as indicated below. (See Appeal and Reinstatement Procedures for All Students.) If the appeal is approved, the financial aid commitment will be for one probationary semester only and further review will be undertaken at the end of that probationary semester. (See Financial Aid Probation.)

For undergraduate students, a maximum time frame of five years (ten 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. Full-time undergraduate students will be required to maintain a pace by which they progress to sophomore, junior, and senior standing in accordance with the requirements of each of the undergraduate schools. Students who fail to earn the minimum hours and grade point average to progress to the next higher class level as determined by each of the undergraduate schools will be reviewed by the Academic Committee of the school of enrollment and may be allowed to continue their enrollment while on academic probation for one or more additional semesters in order to correct their academic deficiencies.

Financial Aid Probation

At the end of a probationary semester, students must then meet Satisfactory Academic Progress or be meeting 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 Federal Title IV and institutional financial assistance. After qualifying for junior standing, all full-time aid recipients are expected to earn a minimum of 12 credits per semester and maintain a cumulative GPA of at least 2.0. Students who fail to earn the minimum credit hours and GPA specified above during any probationary semester will be considered as not making satisfactory academic progress and all financial assistance will be terminated or suspended until the academic deficiency is corrected.

Less than Full-Time Status

For undergraduate students who have approval from the dean of their school to enroll for less than full-time status, credit hours must be earned on a pro-rata basis of the full-time requirements and the minimum specified GPA must be maintained in order for the student to be eligible for federal and/or institutional financial assistance. Peabody (undergraduate) students enrolled for their "professional semester" (student teaching or internship) will be considered to be full-time students for this purpose.

Appeal and Reinstatement Procedures for All Students

Any student whose Federal Title IV and/or institutional student aid is terminated due to unsatisfactory academic progress may submit an appeal for reinstatement of such assistance to the Office of Student Financial Aid and Undergraduate Scholarships. The appeal will be considered by the Executive Director and/or his/her designate, with the right for further appeal to the vice provost for enrollment. If it is determined that the student's lack of academic progress was the result of illness, death in the family, or other exceptional or mitigating circumstances, those factors will be taken into account in determining whether or not eligibility for federal/institutional student aid funds might be reinstated on a probationary basis by a financial aid officer.

Student Employment

Students interested in part-time on- or off-campus employment should contact the Student Employment Office, in the Office of Student Financial Aid and Undergraduate Scholarships, 2309 West End Avenue, Room 325. It is the primary responsibility of the Student Employment Office to assist those students who have applied and are eligible to work under the Federal Work-Study Program. In addition, the Student Employment Office staff will assist other students with job referrals (depending upon availability) to on-campus institutional employment (non-work-study jobs) as well as off-campus postings listed through the office. Students and other interested individuals may pursue job opportunities at *hireadore.com* and view other student employment related information at *vanderbilt.edu/studentemployment* or call (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 WILLIAM AARON PATHFINDER AWARD FOR OUTSTANDING COMMUNITY SERVICE acknowledges one upperclass student whose uncommon community service efforts and leadership skills demonstrate vision, creativity, and innovation. Named in recognition of William Aaron (B.A. 1989), whose own pathfinding led to the creation of the Office of Volunteer Activities (now the Office of Active Citizenship and Service), this award also celebrates Vanderbilt University's extraordinary history of service to the community.

THE ACADEMY OF AMERICAN POETS STUDENT POETRY PRIZE was founded by Vanderbilt University in 1968 and is given to a student in any of the university's undergraduate or graduate schools. The $100 award is presented each year to the student who has written the winning poem.

THE ACCOLADE AWARD was established in 1987 to acknowledge the intent and effort of the Accolade—a formal dance to raise funds for minority scholarships. The award is presented to a rising minority senior in recognition of academic achievement and participation in extracurricular activities which contribute to the diversification of the Vanderbilt student body.

THE NORMA ANTILLON FUND FOR CLAIS STUDENTS was established in 2006 by the CLAIS faculty and friends to provide conference travel support for CLAIS students in the College of Arts and Science.

THE JESSICA AND ELISABETH BEALE RIPPLE IN THE POND AWARD was endowed in 2002 by Mr. and Mrs. George G. Strong, Jr. The award was created to express their gratitude for the assistance and care 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 Strong's classmates and the Vanderbilt personnel with saving Meredith's life. Jessica Aceste and Elisabeth Beale were honored as the first recipients at the 2002 Kudos Ceremony.

THE CHARLES FORREST ALEXANDER PRIZE IN JOURNALISM was established in 1978 in memory of Charles F. Alexander (B.A. 1950) who served as editor of the Commodore and V Book and as a staff member of the Hustler. It is awarded to a student who has achieved distinction in Vanderbilt student journalism.

THE GREG A. ANDREWS CIVIL ENGINEERING MEMORIAL AWARD was established in 1969 by James M. Andrews, Sr. in memory of his son, Greg, who died while a student at Vanderbilt. It is awarded to a senior majoring in civil engineering who has made the greatest academic progress and who plans graduate study in environmental and water resources engineering.

THE THOMAS G. ARNOLD PRIZE was established in 1989 by family and friends of Thomas Arnold, in recognition of his distinguished service as instructor of biophysics in medicine from 1952 until 1989. It is awarded for the best design of a biomedical engineering system or the best research project in the application of engineering to a significant problem in biomedical science.

THE DAN BARGE JR. AWARD IN CIVIL ENGINEERING was established in 2012 by Alice Ann Vaughan Barge (B.A. 1948) and alumni and friends of the School of Engineering to honor the memory of Daniel B. Barge Jr. (B.E. 1943) and his significant service to the school.

THE AWARD FOR OUTSTANDING RESEARCH IN BIOLOGICAL SCIENCES is presented to a senior in biological sciences for outstanding research performed as part of the biological sciences major program.

THE MORRIS H. BERNSTEIN JR. PRIZE IN LATIN DECLAMATION was established in 1983 by William H. Bernstein (B.A. 1983) in memory of his father, Morris H. Bernstein, Jr. (B.A. 1943, M.D. 1946). It is awarded to an undergraduate who has studied two semesters of Latin and wins the competition requiring participants to deliver from memory selected Latin passages that reflect the classical ideal.

THE GLENN AND ELIZABETH BOGITSH AWARD was established in 1989 by the parents of Glenn Carlisle Bogitsh (B.S. 1977) and Elizabeth Norris Bogitsh (B.S. 1982), who died in a 1988 plane crash. It is awarded to the student who best demonstrates a strong commitment to physical fitness and who, by example and leadership, inspires participation and honorable competition in campus recreation programs.

THE BOYKIN EMERGENCY LOAN FUND was established to provide loan funds to undergraduate students enrolled at Vanderbilt.

THE CASEY CARTER BONAR LEADERSHIP AWARD was created in 2011 to honor the memory of Casey Carter Bonar (B.A. 1985) to support undergraduates in their senior year based on leadership, broad collaboration, enthusiasm, passion for campus involvement, selfless service to Vanderbilt, and dedication to positive change.

THE MARGARET BRANSCOMB PRIZE was established in 1993 by family and friends in memory of Margaret Branscomb, wife of Chancellor Emeritus Harvie Branscomb. It is awarded to a freshman judged to have the personal and musical qualities that best exemplify the spirit and standards of Blair School of Music.

THE SUE BREWER AWARD was established in 1987 by the Songwriters Guild Foundation in memory of Sue Brewer, who befriended many of Nashville's struggling songwriters in the late 1960s and early 1970s. The award recognizes excellence in composition/theory or guitar of an undergraduate student at the Blair School of Music majoring in composition/theory or guitar.

THE FRANKLIN BROOKS MEMORIAL AWARD was established in 1994 by faculty, students, and friends in memory of H. Franklin Brooks, associate professor of French and three-time director of the Vanderbilt in France program. Additional support came from Alliance Française of Nashville and the estate of Barbara Shields Kelley (B.A. 1937). The award is given to an outstanding student enrolled in the Vanderbilt in France program.

THE LARRY ROSS CATHEY AWARD was endowed in 1974 in memory of Larry Ross Cathey (B.A. 1966 with honors in astronomy; M.A. 1968; Ph.D. University of California at Santa Cruz, 1974). It is awarded to an outstanding undergraduate astronomy major.

THE NORA C. CHAFFIN SCHOLARSHIP was established in 1956 by the Women's Student Government Association in appreciation of the former Dean of Women's twenty years of service to Vanderbilt women students. The award is given to a junior who "has displayed service to the university in the areas of student government, religious, literary, and scholastic activities, and in the arts."

THE CLASSICS DEPARTMENT STUDENT TRAVEL FUND FOR ROME, ITALY was established in 2005 by Richard and Barbara Davis for the Classics Department to use for an award to support undergraduates' travel in Rome, Italy.

THE PAUL CONKIN FUND was established in 1999 by an anonymous donor in recognition of the career of Paul K. Conkin (Ph.D. 1957) who served in the faculty from 1979 until his retirement in 2000, for the purpose of awarding a prize each year for the best term paper on American history written by an undergraduate.

THE COOLEY PRIZE was originally established in 1920 at the George Peabody College for Teachers as an endowed medal fund. Reinaugurated in 1996, it is presented to the graduating senior majoring in history of art with the highest grade point average.

THE WALTER CRILEY PRIZE PAPER AWARD was established in 1978 by Robert P. Derrick (B.E. 1954) in honor of Walter Criley, professor of electrical engineering, emeritus. It is presented to a senior for the best paper written on an advanced senior project in electrical engineering.

THE DAVIS PRIZE was established in 2005 by Dick (B.E. 1969) and Barbara (B.S.N. 1969) Davis to support travel expenses for an undergraduate attending the Intercollegiate Center for Classical Studies in Rome, Italy.

THE EDWARD PRENTICE DAVIS MEMORIAL PRIZE was created in 2002 for use by NROTC to award outstanding midshipmen in memory of Ward Davis (B.S. 1999).

THE ALLAN P. DELOACH MEMORIAL PRIZE IN PHOTOGRAPHY, established in 2000 in memory of Allan DeLoach (B.A. 1963) by two of his colleagues at IBM, is given to the student chosen by an outside juror in a photography competition.

THE ROBERT V. DILTS AWARD was established in 1994 by the chemistry department and friends in honor of Robert V. Dilts, professor of chemistry, emeritus. It is presented to an outstanding graduating senior in analytical chemistry, with preference given to a student who plans a career in the field.

THE DISTINGUISHED ACADEMIC ACHIEVEMENT IN SPECIAL EDUCATION AWARD is presented annually to the graduating senior in special education who exemplifies the highest level of academic achievement.

THE ARTHUR J. DYER JR. MEMORIAL PRIZE was established in 1938 by Arthur J. Dyer, Sr. (B.E. 1891) in memory of his son, a former Vanderbilt student who died working on a bridge construction in 1928. The prize is awarded to a senior who performed the best work in structural steel engineering.

THE EXCELLENCE IN CHILD DEVELOPMENT AWARD is 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.

THE EXCELLENCE IN CHILD STUDIES AWARD is awarded to the graduating senior majoring in Child Studies whose work, in the opinion of the faculty of the Department of Psychology and Human Development, exemplifies academic excellence.

THE EXCELLENCE IN COGNITIVE STUDIES AWARD is presented annually by the Department of Psychology and Human Development to the graduating senior who most clearly exemplifies the goals of the Cognitive Studies Program.

THE T. ALDRICH FINEGAN AWARD is awarded for the best senior honors thesis in the Department of Economics.

THE EDWIN S. GARDNER MEMORIAL PRIZE FOR EXCELLENCE IN FRENCH was established in 1980 by Grace D. Gardner (B.A. 1932) in memory of her husband, Edwin (B.A. 1927), Vanderbilt Treasurer Emeritus. It is awarded to a senior for excellence in French studies.

THE GEYER AWARD was established in 1970 by Richard A. Geyer, Jr. (B.A. 1970), to stimulate healthy journalistic competition and to help foster the belief that "the newspaper, radio, and television station (of the university) should delve into and interpret events and trends occurring within the university." The award is presented to the reporter who has most consistently prepared articles or reports based on thorough research and which have been at the same time "lively, informative, and logical."

THE GUY GOFFE MEANS AWARD was established in 1975 with a bequest from Marie Hochle Means and is presented to a student with ability in creative writing.

THE NORMAN L. AND ROSELEA J. GOLDBERG PRIZE was established in May 2000 by a bequest from Mrs. Roselea J. Goldberg to award annually for the best manuscript as judged by the Vanderbilt University Press Committee.

THE JOHN P. GREER AWARD was established in 2006 by Professor John Lachs and Mrs. Shirley Lachs in honor of Dr. John P. Greer, professor of medicine in Vanderbilt's Department of Hematology, to commend his career path and in gratitude for the care given by Dr. Greer to Mrs. Lachs. The award is for a graduating senior in the College of Arts and Science who is majoring in philosophy and going on to medical school.

THE LARRY C. HALL STUDENT TRAVEL FUND was established in 1995 in honor of Larry C. Hall, professor of chemistry, emeritus, to defray the cost of a student traveling to the Pittcon Conference, a chemistry-related conference.

THE MARGARET STONEWALL WOOLDRIDGE HAMBLET FELLOWSHIP was endowed in 1983 by Clement H. Hamblet and Margaret H. Sarner, husband and daughter of Margaret Hamblet, to commemorate her love of art. She was a graduate of Peabody College in the Class of 1926. Given to a senior who shows outstanding merit in studio art, it provides for one year of travel to study art and develop creativity.

THE JEAN AND ALEXANDER HEARD AWARD was established in 2011 at the Blair School of Music in memory of Jean and Alexander Heard and to provide financial assistance for undergraduate students to attend a summer study program. Preference in awarding will be given to Blair students who have been accepted at one of the summer music festivals and have financial need.

THE JEAN KELLER HEARD PRIZE was established in 1985 by the Vanderbilt Women's Club to honor violinist Jean Keller Heard, wife of Chancellor Emeritus Alexander Heard. It is awarded for excellence in musical performance to a strings major seeking the Bachelor of Music degree.

THE HISTORY DEPARTMENT FRESHMAN SEMINAR AWARD was established in 2001 to recognize an outstanding student in a history department freshman seminar.

THE FRANK HOUSTON AWARD FOR ORATORY was established in 1974 with a bequest from Frank K. Houston, a member of the Vanderbilt Board of Trust from 1937 until his death in 1973. It is awarded annually to the winners of public speaking competitions.

THE HUMAN AND ORGANIZATIONAL DEVELOPMENT AWARDS are presented to the graduating seniors who exemplify the highest levels of scholarship and leadership in the Human and Organizational Development Program: Ed Martin Community Service Award, Bob Newbrough Outstanding Community Development and Social Policy Award, Outstanding Health and Human Services Award, Outstanding Leadership and Organizational Effectiveness Award, Outstanding International Leadership and Development Award, Outstanding Public Policy Award.

THE HUMAN AND ORGANIZATIONAL DEVELOPMENT SENIOR THESIS AWARD is presented to the student who produces the best overall senior honors thesis in Human and Organizational Development.

THE MELVIN D. JOESTEN SCIENCE VOLUNTEER AWARD FUND was established in 1998 in recognition of Professor Joesten's many years of service to the chemistry department at Vanderbilt. The fund will provide awards for outstanding science volunteers in the Department of Chemistry at the College of Arts and Science.

THE ERNEST A. JONES AWARD was established in honor of Ernest A. Jones, professor of physics, emeritus, who taught at Vanderbilt from 1951 to 1985. Aiming to strengthen the physics program, it is awarded to an outstanding student who declares physics as a major or double major.

THE MARK M. JONES UNDERGRADUATE AWARD IN INORGANIC CHEMISTRY was established in 1998 in honor of Mark M. Jones, professor emeritus, in honor of his many years of service to the Department of Chemistry and the university to provide awards for students who have excelled in inorganic chemistry.

THE SUSAN JUNG AWARD is given by the Asian American Student Association (AASA) and Masala SACE (South Asian Cultural Exchange) to honor an undergraduate member of the Asian American community who has shown outstanding commitment to and passion for Vanderbilt through cultural and/or political education. The award honors those who exemplify the vision of Susan Jung (B.S. 1988), who in the fall of 1986 founded AASA upon the principle of unity through diversity.

THE MICHAEL B. KEEGAN TRAVELING FELLOWSHIP is awarded to a graduating senior for a year of worldwide travel and study on a self-designed project broadly related to international concerns. The award seeks to develop a prospective leader in the nation and the world.

THE WALTER GILL KIRKPATRICK PRIZE was established in 1926 with a bequest from Walter Kirkpatrick (B.E. 1886, C.E. 1887, M.S. 1889). It is awarded to the most deserving third-year student majoring in civil engineering.

THE DOROTHA M. LANE LOAN FUND at Peabody College was established in 2008 through a gift from the estate of Dorotha Menees Lane (B.S. 1933, M.A. 1946) to provide loan funds to assist undergraduate students enrolled in Peabody College with preference to students from the Cedar Hill community in Robertson County, Tennessee; Leflore County, Mississippi; and the state of Tennessee.

THE R. J. LARSEN PRIZE FOR EXCELLENCE IN MATHEMATICS was established in 2005 to provide an award to a graduating senior for excellence in mathematics.

THE IMANI AWARD: JAMES LAWSON AWARD FOR LEADERSHIP is presented to a graduating senior who has continuously been an integral part of campus life and has demonstrated an outstanding capacity for leadership and devotion to Vanderbilt.

THE C. MAXWELL LANCASTER MEDAL FOR EXCELLENCE IN ITALIAN was established in 1991 in memory of C. Maxwell Lancaster, professor of French and Italian at Vanderbilt from 1939 to 1976. It is awarded to a student who maintains the highest standard throughout four semesters of Italian.

THE AVERY LEISERSON AWARD was established by students to honor Avery Leiserson, professor of political science, emeritus, a member of the faculty from 1952 until his retirement in 1978. He served as chair of the department from 1952 to 1964. The award is presented annually for the best research paper or essay written by an undergraduate in a political science course.

THE JOEL CARL LICHTER MEMORIAL AWARD was established in 1996 by Vanderbilt Professor Barry D. Lichter and Elizabeth M. Lichter to honor their son, Joel Carl Lichter (B.E. 1981, magna cum laude, Tau Beta Pi). Presented to a senior who contributes by example to the promotion of wilderness skills and outdoor education at Vanderbilt, combining academic excellence and expertise in wilderness skills along with friendship and service to others.

THE KEVIN LONGINOTTI AWARD was named in 1999 by the Department of Teaching and Learning to honor the memory of Kevin Edward Longinotti, an outstanding secondary education major. The award is presented annually to a graduating senior who shows exceptional promise as a teacher at the secondary school level.

THE S. S. AND I. M. F. MARSDEN AWARD IN MUSICAL SCHOLARSHIP was established by Sullivan S. Marsden, Professor Emeritus of Petroleum Engineering at Stanford University, and Blair faculty member Kathryn Plummer's father-in-law. The award is designated for an outstanding major paper by a Blair undergraduate.

THE THOMAS W. MARTIN MEMORIAL AWARD was established in 1992 in memory of Thomas W. Martin, professor of chemistry from 1957 to 1991 and department chair from 1967 to 1970. It is presented to a graduating chemistry major who has excelled in physical chemistry and plans graduate study in chemistry.

THE JOHN T. MCGILL AWARD was established in 1960 by Lizzie McGill in memory of her husband, John T. McGill (B.A. 1879), who spent his life in service to Vanderbilt, first as a student and then as professor and historian of the university. The award is presented to the resident of the McGill Philosophy and Fine Arts Project who, in the eyes of fellow residents, "has established qualities of leadership, as well as being a good student of gentle bearing."

THE JOHN T. AND LIZZIE ALLEN MCGILL FRESHMAN AWARD honors Dr. and Mrs. McGill, both of whom served as friends of Vanderbilt students, providing them hospitality and guidance. It is given to two "academically accomplished freshmen of gentle bearing who show kindness and respect for all others, and who have established qualities of leadership."

THE JOHN T. AND LIZZIE ALLEN MCGILL UPPERCLASS AWARD, which is given in honor of Dr. and Mrs. McGill, is given to two upperclass students "who are academically accomplished, who have demonstrated qualities of leadership, and whose efforts have led to an increased understanding of other students' needs, and a more civil campus atmosphere."

THE MERCK INDEX AWARD is awarded annually by Merck & Co., Inc., and presented to an outstanding graduating senior chemistry major who plans to attend medical school. The recipient is selected by the faculty of the Department of Chemistry.

THE MERRILL MOORE AWARD was established in 1961 by Ann Leslie Nichol Moore in memory of her husband, Merrill Moore (B.A. 1924, M.D. 1928), a Fugitive poet and renowned psychiatrist. The award is presented to a junior or senior who shows literary promise.

THE HENRIETTA HICKMAN MORGAN MEMORIAL PRIZE was established in 1946 by William B. Morgan II in memory of his wife, a member of the Class of 1938. It is awarded for the best piece of original writing submitted by a member of the freshman class.

THE MULIEBRITY PRIZE was established in 1996 in honor of the student newspaper, *Muliebrity,* which was published in 1992–93. The Muliebrity Prize goes to an undergraduate student who demonstrates leadership in activities that contribute to the achievements, interests, and goals of women and girls or that promote gender equity.

THE NED PARKER NABERS AWARD was established by colleagues and friends in memory of classics professor Ned Parker Nabers who served on the faculty from 1966 until his death in 1984. It recognizes the best essay or research paper by an undergraduate in the fields of classical archaeology or ancient art or architecture.

THE DANA W. NANCE PRIZE FOR EXCELLENCE IN THE PRE-MEDICAL CURRICULUM was endowed in 1985 by family and friends of Dana W. Nance (B.A. 1925, M.D. 1929). It is awarded to a student who has demonstrated perseverance to succeed in the pre-medical curriculum and who embodies the attributes of a caring physician.

ELLIOTT AND AILSA NEWMAN CLARINET AWARD was established in 1998 with a bequest from Ailsa MacKay Newman and memorial gifts from her family and friends. It is presented to a clarinet major for excellence in performance.

THE L. HOWARD NICAR MEMORIAL FUND was established in 1997 by colleagues, students, and friends in memory of L. Howard Nicar, former assistant dean of admissions at Blair.

THE OUTSTANDING PROFESSIONAL PROMISE AWARD IN EARLY CHILDHOOD EDUCATION is presented annually to a graduating senior who shows exceptional promise as a teacher of young children.

THE OUTSTANDING SENIOR IN CHEMISTRY AWARD is presented to the graduating senior planning graduate work in chemistry who, in the opinion of the faculty in the department, shows the most promise for an outstanding career.

THE OUTSTANDING UNDERGRADUATE ENGLISH MAJOR AWARD was established in 1998 and presented in honor of the distinguished teaching careers of Professors Emerson Brown, Jr., Ann Jennalie Cook, and Leonard Nathanson. The award is given to that English major who best embodies the values of intellectual excellence, scholarly discipline, and engagement with the subject of English literature.

THE ROBERT M. OVERALL LOAN FUND was established in 1980 by the family members of Robert Moore Overall (B.A. 1916) to provide need-based financial support for students in the College of Arts and Science.

THE DONALD E. PEARSON AWARD was established in 1980 by the chemistry department to honor Donald E. Pearson, professor of chemistry, emeritus, who served on the faculty from 1946 until his retirement. It is presented to a graduating senior majoring in chemistry who has been judged the most distinguished in undergraduate chemistry research.

THE PHI BETA KAPPA CENTENNIAL AWARD was created in 1998 by the members of the Alpha chapter of Phi Beta Kappa to commemorate the 100th anniversary of the Vanderbilt chapter and is awarded annually to a junior initiate to the society.

THE EMILY ANN BENNETT PLANT AWARD IN ANTHROPOLOGY was established in 1995 with a gift from Emily Ann Bennett Plant (B.A. 1994) to recognize excellence in the study of anthropology. 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 family, colleagues, and friends to honor Robert Peter Pratt (1954–1991), associate director of undergraduate admissions and leader in promoting student diversity. It is presented to a Chancellor's Scholar of junior or senior standing whose leadership and service exemplify Peter Pratt's commitment to diversity and unity.

THE PSYCHOLOGY AND HUMAN DEVELOPMENT UNDERGRADUATE HONORS AWARD is awarded to the graduating senior who has successfully completed the undergraduate honors program in cognitive studies or child development and who has produced the best overall honors project.

THE ROB ROY PURDY AWARD was established in 1979 by the student affairs staff to honor the senior vice chancellor, emeritus. The award is presented to the upperclass student judged by the student affairs staff to have demonstrated in his or her leadership the qualities of humaneness, dedication, loyalty, and unselfish service to Vanderbilt University so exemplified by Rob Roy Purdy.

THE DAVID RABIN PRIZE was established in 1985 by family and friends in memory of David Rabin, Professor of Medicine and Professor of Obstetrics and Gynecology from 1975 to 1984. It is awarded to a Blair School of Music undergraduate for excellence in musical performance.

THE JIM ROBINS AWARD was established in 1969 by Michael G. Wagner (B.A. 1957). It is given to perpetuate the memory of James A. Robins (B.A. 1892) whose "life and teachings exemplified selfless devotion to learning, to honor, to participation in . . . sports, and to service to youth and alma mater." It is awarded to a "Vanderbilt athlete of the senior class in whose life these virtues are most evident."

THE JOE L. ROBY NROTC ESPRIT DE CORPS AWARD was established in 2006 in honor of Joe L. Roby (B.A. 1962), member of the Vanderbilt Board of Trust to recognize and reward Vanderbilt NROTC midshipmen who display outstanding enthusiasm and esprit de corps as members of

the battalion through involvement in NROTC and university activities and provide inspiration to fellow midshipmen and students.

THE KATHRYN SEDBERRY POETRY PRIZE was established in 2003 through a gift from the estate of Kathryn Sedberry.

THE DOROTHY J. SKEEL AWARD is presented annually to a graduating senior who shows exceptional promise as a teacher at the elementary school level.

THE SPECIAL EDUCATION TEACHER OF EXCELLENCE AWARD is awarded annually to the graduating senior who has demonstrated the highest level of excellence in teaching in the area of special education.

THE JAMES G. STAHLMAN NROTC AWARD was established in 1972 by James G. Stahlman, former member of the Vanderbilt Board of Trust and former president of the *Nashville Banner.* The award is presented to the midshipman of the senior class who has proven himself to be the most outstanding in citizenship, scholarship, and leadership.

THE DAVID STEINE ECONOMICS AND BUSINESS AWARD IN MANAGERIAL STUDIES was established in 2005 by James B. Johnson, Jr. (B.A. 1954) to honor the memory of David Steine, a favorite professor of Mr. Johnson. The award recognizes undergraduates for excellence in the Corporate Strategy Competition.

THE STEIN STONE MEMORIAL AWARD was established in 1948 by Mrs. Stone in memory of her husband, James N. "Stein" Stone, an "All Southern" center for the football team from 1904 to 1907. It is presented to a senior who has lettered in football and has been judged to have made the most scholastic and athletic progress.

THE HENRY LEE SWINT AWARD was established in 1976 by Frank A. Woods (B.A. 1963, L.L.B. 1966), a former student of Henry Swint, Holland N. McTyeire Professor of History who served on the faculty from 1939 until 1977. It is presented for the best history essay or research paper.

THE ROBERT B. TANNER UNDERGRADUATE RESEARCH AWARD is given to a senior who, in the judgment of the chemical engineering faculty, has conducted at Vanderbilt the best undergraduate research project.

THE JOEL TELLINGHUISEN PHI BETA KAPPA AWARD was established in 2003 by James B. Johnson, Jr., (B.A. 1954) to recognize the career of Professor Tellinghuisen and the impact he has made on his students, and to recognize the outstanding scholarship of Phi Beta Kappa members in their senior year.

THE UNDERWOOD MEMORIAL AWARD was 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 award is given to the most deserving and promising graduating senior or graduate student in physics.

THE JACQUELINE AND MORRIS WACHS ESSAY PRIZE was established in 1999 by colleagues, friends, and family to honor the memory of Jacqueline Wachs, who taught French from 1966 until her retirement in 1994, and her husband Morris Wachs, professor of French, emeritus.

THE WALTHER AWARD FOR VUCEPT EXCELLENCE was established in 2005 by Beverly R. Walther (B.S. 1990, MBA 1990) and Michael C. Walther II (B.S. 1989, MBA 1990) to provide awards to undergraduate students serving as mentors in the VUcept orientation program.

THE THOMAS M. WESER AWARD was established in 1989 in memory of Thomas M. Weser, an exchange student from Germany, to foster international education and exchange. Given annually to the international student who has demonstrated an unusually strong commitment to intellectual life, cross-cultural appreciation, and personal integrity.

THE MARTIN WILLIAMS AWARD was established in 1992 in memory of Martin Williams, Director of the Smithsonian Institution's Jazz Program and Adjunct Professor of Jazz History at Blair School of Music. It is awarded to the Blair music major writing the most outstanding paper for a music theory or literature/history course during the academic year.

THE SUSAN FORD WILTSHIRE ESSAY PRIZE is cosponsored by the Women's and Gender Studies Program and the Women's Faculty Organization. It recognizes the best undergraduate and graduate papers on topics concerning gender. Depth of research, quality of analysis, originality, and clarity of presentation are considered.

THE KATHERINE B. WOODWARD PRIZE IN SPANISH was established in 1943 by Katherine Woodward (B.A. 1919), who taught high school Spanish from 1919 until 1956. It is awarded to a senior who demonstrates excellence in Spanish studies.

THE YOUNG ALUMNI TRUSTEE is nominated by the Alumni Association to serve on the Board of Trust. Members of the graduating class, the preceding class, and the succeeding class of the four undergraduate schools vote on a slate of three graduating seniors. Young Alumni Trustees are eligible to serve two successive two-year terms on the Board.

Scholarships and Need-Based Financial Aid

Honor Scholarships

Vanderbilt's highly competitive Honor Scholarship program is based on academic merit and leadership. Honor Scholarships are awarded in recognition of exceptional accomplishment and high promise in some field of intellectual endeavor. The applicant's total record is considered, with particular attention to academic performance, standardized test scores, and recommendations. For applicants to the Blair School of Music, the entrance audition is an important factor.

To be considered for Honor Scholarships, students applying for fall 2013 admission must complete the Vanderbilt Scholarship application by the deadline established by the Office of Student Financial Aid and Undergraduate Scholarships. This deadline, which could be as early as December 1, is promulgated at *vanderbilt.edu/scholarships* and *vanderbilt.edu/financialaid*. Honor Scholarships normally are awarded to incoming freshmen and continued for four years of undergraduate study, subject to satisfactory academic performance. Unless noted as providing full tuition, the Honor Scholarships offer a partial-tuition award.

Financial need is not considered in the awarding of Honor Scholarships. Students who desire need-based student financial aid should apply through regular university channels.

University General Honor Scholarships

THE SOPHIE D. ABERLE SCHOLARSHIP was established in 1997 with a bequest from Sophie D. Aberle, Ph.D., M.D., whose distinguished career in anthropology and government service with the Bureau of Indian Affairs spanned almost seventy years. She died in 1996 at the age of 100. Awarded on the basis of academic merit, preference is given to students of Native American origin who are members of the Navajo Tribe or Nation.

THE CARELL SCHOLARSHIPS were established in 1998 by Monroe J. Carell, Jr. (B.E. 1959) and his wife, Ann Scott Carell (B.S. 1957, Peabody). The late Mr. Carell was former chairman of Central Parking System, a Nashville philanthropist, and Vanderbilt University Board of Trust member from 1991 until his death in June 2008. The full-tuition scholarships are based on academic achievement, extracurricular activities, financial need, and student employment.

THE CHANCELLOR'S SCHOLARS PROGRAM, initiated in 1985 by Chancellor Joe B. Wyatt, is funded with gifts from alumni, faculty, staff, students, corporations, and friends. Chancellor's Scholars are selected on the basis of commitment to diversity, leadership, strength of character, and academic achievement. Scholars receive full tuition and $5,000 for one summer study abroad or research experience after the sophomore year, and participate in a leadership enrichment program. Scholarships are renewed each year as long as the student maintains a cumulative GPA of 3.0. To be considered, candidates complete the Chancellor's Scholarship application, available from the Office of Undergraduate Admissions. Potential scholars may also be nominated by teachers, counselors, alumni, or community members who believe they meet the standards set forth by the program.

THE MAGGIE S. CRAIG MEMORIAL SCHOLARSHIP, established by Cornelius A. Craig in honor of his wife, is awarded each year to an entering freshman who is a resident of Giles County, Tennessee, and has attended school there for at least five years. The amount awarded is equivalent to full freshman-year tuition and an additional stipend to help with other educational costs, if funds allow. Awards for subsequent years will continue at the freshman-year level unless adequate funds are available to increase the awards for all Craig Scholarship recipients. Candidates are chosen by the Vanderbilt Craig Scholarship Committee and the Giles County Craig Scholarship Committee. If the scholarship is not awarded to an entering freshman, the committees may choose a Craig Scholar from among second-, third-, or fourth-year undergraduate students who meet the criteria.

THE DELEK HOPE SCHOLARSHIP was established in 2008 by Delek US Holdings, Inc., to provide scholarship support for deserving undergraduate students in any of Vanderbilt's four undergraduate schools who are graduates of Israeli high schools.

THE WILLIAM D. AND VIOLET H. HUDSON HONOR SCHOLARSHIP was established in 1987 by William D. Hudson, Jr. (B.A. 1941), Thomas M. Hudson (B.A. 1942), and John H. Hudson (E 1945) to honor their parents. The award benefits students from Montgomery County, Tennessee.

THE INGRAM SCHOLARS PROGRAM was established in 1993 by the late E. Bronson Ingram (A 1953) and his family. Ingram, who joined the Vanderbilt University Board of Trust in 1967, was president of the Board from 1991 until his death in June 1995. In addition to academic merit, scholars are selected on the basis of a strong record of community service. Recipients design and implement projects that address significant societal needs. The Ingram Scholarship Program provides full-tuition support each year to entering freshmen, half-tuition support each year to current Vanderbilt students, stipends for special summer projects, and project expense budget. Applications and brochures are available in the Office of Undergraduate Admissions. For more information, call the Ingram Scholarship Program at (615) 322-8586, go to *vanderbilt.edu/ingram,* or write to Ingram Scholarship Program, Office of Undergraduate Admissions, Vanderbilt University, 2305 West End Avenue, Nashville, Tennessee 37203-1727.

THE JESSE H. JONES AND MARY GIBBS JONES SCHOLARSHIP was established in 1994 by the Houston Endowment, Inc., to honor Jesse Holman Jones (founder of the Houston Endowment and a member of the Peabody College Board of Trust from 1929 until his death in 1956) and his wife. The scholarship is awarded to talented and promising students from Houston, Texas, and the surrounding region.

THE KINDER MORGAN EXCELLENCE IN ENGINEERING SCHOLARSHIP was established in 1994 by the Sonat Foundation to benefit undergraduate engineering students in their junior and senior years. Preference is given to students majoring in computer science, engineering science, chemical engineering, civil engineering, computer engineering, electrical engineering, or mechanical engineering. In 2000, Sonat was acquired by El Paso Energy Corporation and the name of the fund was changed. In 2012 El Paso Energy was acquired by Kinder Morgan, and the fund name was changed again.

THE KINDER MORGAN EXCELLENCE IN ENGINEERING DIVERSITY SCHOLARSHIP was established in 1994 by the Sonat Foundation to benefit undergraduate engineering students in their junior and senior years. Preference is given to students majoring in computer science, engineering science, chemical engineering, civil engineering, computer engineering, electrical engineering, or mechanical engineering who add to the diversity of the university. In 2000, Sonat was acquired by El Paso Energy Corporation and the name of the fund was changed. In 2012 El Paso Energy was acquired by Kinder Morgan, and the fund name was changed again.

THE GARRETT C. AND BENNETT D. KLEIN MEMORIAL SCHOLARSHIP was established in 2004 by Stacy Klein to provide scholarships based on academic merit to deserving undergraduates at Vanderbilt who have exhibited a commitment to diversity. This memorial fund was established in the name of Garrett Klein following the tragic accident that took his life and that of his young son, Bennett. Garrett C. Klein, senior associate director of undergraduate admissions, recruited students to the university, working closely with the College of Arts and Science and athletics. He worked his entire career at Vanderbilt. "He was a gifted admissions officer who loved his Vanderbilt colleagues and his work equally," said William M. Shain, dean of undergraduate admissions.

THE ALICE VIRGINIA KNORR MEMORIAL SCHOLARSHIP was established by family and friends in 1989 in memory of Alice Virginia Knorr who

died of cancer during her junior year at Vanderbilt. The fund honors her loving and optimistic character and her perseverance in the face of adversity as she dealt with her disease while continuing her education. It is awarded to a member of Kappa Alpha Theta who is a rising junior or senior with academic achievement and who exhibits qualities admired in Alice.

THE LANIER SCHOLARSHIP PROGRAM was established with the generous support of the Lanier family of Atlanta and Vanderbilt alumni in the greater Atlanta area. Sartain Lanier (B.A. 1931), a leader in the Atlanta business community, was a Vanderbilt Board of Trust member from 1960 until his death in 1994. Two scholarships, covering tuition and fees, are awarded annually to graduates of secondary schools in the Georgia counties of Clayton, Cobb, DeKalb, Douglas, Fulton, Gwinnett, Henry, and Rockdale. Applications can be obtained from the Office of Undergraduate Admissions.

THE MEMPHIS VANDERBILT HONOR SCHOLARSHIP was established in 1984 by an individual from Memphis, Tennessee. Contributions from Memphis alumni have expanded the fund, which provides an award to entering freshmen from Memphis.

NATIONAL ACHIEVEMENT SCHOLARSHIPS are awarded each year to entering freshmen who are named Finalists by the National Merit Scholarship Corporation. Recipients must not have been awarded a National Achievement Scholarship by a corporate sponsor. Finalists must list Vanderbilt University as their first choice school by the designated deadline. These scholarships are administered by the National Merit Scholarship Corporation.

NATIONAL MERIT SCHOLARSHIPS are awarded each year to entering freshmen who are named Finalists by the National Merit Scholarship Corporation. Recipients must not have been awarded a National Merit Scholarship by a corporate sponsor. Finalists must list Vanderbilt University as their first-choice school by the designated deadline. These scholarships are administered by the National Merit Scholarship Corporation.

THE JOHN E. ROVENSKY SCHOLARSHIP was established in 2002 as a full-tuition scholarship available to undergraduates with one or more parents employed by the United Parcel Service. Mrs. Jane R. Grace, daughter of Mr. Rovensky and mother of Jack Rovensky Grace (B.A. 1988), established the scholarship in honor of her father who provided integral support for the expansion of the United Parcel Service in its earliest days. Preference may be given to students with financial need. Academic achievement, leadership qualities, and outstanding character will be considered. The ideal recipient will embody Mr. Rovensky's personal creed of "being the best that you can be."

THE JOHN SEIGENTHALER SCHOLARSHIP was established in 2001 by The Freedom Forum to honor First Amendment Center founder John Seigenthaler. The endowment will support the awarding of one Seigenthaler Scholarship each year to an entering freshman with an interest in journalism. The scholarships will be awarded to students of color, providing full tuition for four years. Scholars may participate in an internship at The Freedom Forum or First Amendment Center.

THE DINAH SHORE SCHOLARSHIP was established in 1992 by Dinah Shore (B.A. 1938) who died in 1994 after a distinguished career in entertainment, to provide scholarship assistance based on academic merit and talent. The scholarship rotates among the four undergraduate schools, spending four years in each school.

THE GEORGE AND PEGGY WEISE SPIEGEL HONOR SCHOLARSHIP IN SCIENCE AND ENGINEERING was established in 1998 by George Spiegel (B.E. 1948) and his wife, Peggy (B.A. 1948), in celebration of their fiftieth class reunion. The scholarship is awarded to a student enrolled in the School of Engineering or to an Arts and Science student who is majoring in a field of science or mathematics.

UNITED STATES STEEL FOUNDATION HONOR SCHOLARSHIPS were initiated in 1982. Awards are available to freshmen and sophomores on a competitive basis for up to three years of study. Outstanding academic performance and leadership potential are the principal selection criteria, but financial need will be considered. Preference will be given to sons and daughters of United States Steel Corporation employees and retirees.

THE CORNELIUS VANDERBILT SCHOLARSHIP PROGRAM was established in 2007 with a gift from the Sartain Lanier Family Foundation of Atlanta designated to unite and strengthen Vanderbilt's existing full-tuition academic merit scholarships under the aegis of a coordinated and cohesive scholarship program. The program honors the vision of Vanderbilt University's founder, Commodore Cornelius Vanderbilt, and provides full tuition, plus a stipend to be used toward a summer study abroad or research experience following sophomore or junior year. In addition, students participate in several special programs coordinated by the Office of Undergraduate Honor Scholarships throughout the academic year.

HAROLD STIRLING VANDERBILT (HSV) HONOR SCHOLARSHIPS honor the memory of Harold Stirling Vanderbilt, great-grandson of Commodore Cornelius Vanderbilt and president of the university's Board of Trust from 1955 to 1968. One full-tuition HSV Scholarship is awarded annually in the Blair School of Music with two awarded in both the School of Engineering and Peabody College. Nine full-tuition HSV Scholarships, which include a summer study opportunity abroad, are awarded in the College of Arts and Science.

College of Arts and Science Honor Scholarships

THE JULIA P. ARNOLD HONOR SCHOLARSHIP was established in 1983 with a bequest from Julia A. Powell Arnold (B.A. 1923, M.A. 1926).

THE FIELDING JEWELL BOLES HONOR SCHOLARSHIP was established in 1995 with a bequest from Dr. William McDonald Boles (B.A. 1931) and his wife, Eva Carol, of New Orleans, to honor his father. The full-tuition award is available to students from the Kentucky counties of Allen, Barren, Cumberland, Logan, Metcalfe, Monroe, Simpson, and Warren, with preference given to those from Barren County. Fielding Boles, a lifelong resident of Glasgow in Barren County, served as a banker to the people of this region.

THE GAIL ANDERSON CAÑIZARES SCHOLARSHIP was established in 2000 by the Rose-Marie and Jack R. Anderson Foundation in honor of Mr. and Mrs. Anderson's daughter. Gail Anderson Cañizares was graduated from the College of Arts and Science in 1974. The scholarship will provide half-tuition.

THE CLASS OF '61 SCHOLARSHIP was established in 2005 by an anonymous member of the class to provide honor scholarship awards, helping Vanderbilt attract and support outstanding undergraduates in the College of Arts and Science. The donation was in recognition of the many friendships established during their four years together, and in appreciation of the significant contribution each made to the personal development of all.

THE COLLEGE CABINET HONOR SCHOLARSHIP was initiated in 1984 with gifts from members of the College Cabinet, the donor society for the College of Arts and Science. The scholarship covers the cost of tuition.

THE STEPHEN HARRIS COOK MEMORIAL FELLOWSHIP was established in 1976 by his parents as a memorial. It is awarded each year to a rising senior on the basis of need and ability, to enable the student to continue undergraduate research during the summer. The recipient is selected by the faculty of the Department of Chemistry.

THE DERAMUS FAMILY SCHOLARSHIP was endowed in 1998 by the Deramus Foundation, which was created by the late William N. Deramus III, former chairman of Kansas City Southern Industries and MAPCO, Inc., and his wife, the late Patricia W. Deramus. Members of the family, including Baird Deramus Fogel (B.A. 1993), Dawn Deramus Fogel (B.A. 1995), Marshall Harkless Dean III (B.A. 1999), and Jennifer Watson Dean (A 2001) are involved with the foundation, which contributes to the support of education.

THE JAYNE LOREE DRUSHAL MEMORIAL SCHOLARSHIP was established in 1968 by the Drushal family in memory of Jayne, a member of the class of 1967. The award provides assistance to a Vanderbilt student attending the Vanderbilt in France program, with preference given to those majoring in French. Apply by April 15 to the chair of the French department.

THE JAMES W. EDWARDS JR. SCHOLARSHIP, established in 1984 by Mr. and Mrs. James W. Edwards as a memorial for their son, is awarded annually to a Vanderbilt student attending the Vanderbilt in Germany program. For more information, contact the director of study abroad programs.

THE MARVIN P. FRIEDMAN SCHOLARSHIP, established in 1982 by Mr. Friedman (B.A. 1947), is available to an entering freshman from California or the West Coast. Financial need is a consideration.

THE SHERRY JORDAN GALLOWAY SCHOLARSHIP was established in 2012 by Sherry J. Galloway (B.A. 1980, M.D. 1984) and Russell E. Galloway (M.D. 1984) to provide need-based scholarship support to undergraduate students enrolled in the College of Arts and Science.

THE EMMARYNE H. GENY HONOR SCHOLARSHIP was created in 1985 with a gift from Mr. Charles W. Geny (B.A. 1936), a life member of the Vanderbilt Board of Trust.

THE ROBERT HARVEY HONOR SCHOLARSHIP was established in 2002 with a gift from the estate of the late Arkansas Senator Robert Harvey (B.A. 1937, LL.B. 1939). The endowment will provide a full-tuition scholarship for an outstanding freshman applicant to the College of Arts and Science from the state of Arkansas, with preference given to applicants from Jackson County, Senator Harvey's home county.

THE JOANNE FLEMING HAYES SCHOLARSHIP was established in 1993 by Joanne Fleming Hayes (B.A. 1968) in celebration of her twenty-fifth class reunion. She served as class chair for Reunion '93 and general chair for Reunion '98.

THE RICHARD G. HOLDER HONOR SCHOLARSHIP was established by the Reynolds Metals Company Foundation in 1996 to honor Richard G. Holder (B.A. 1952) for his leadership and service to the company. He retired as chairman and CEO in 1996.

THE KIRBY E. AND MARGARET A. JACKSON HONOR SCHOLARSHIP was established in 1992 with a bequest from Kirby E. Jackson, a former Vanderbilt chemistry professor. The fund honors Jackson (B.A. 1918, M.S. 1919) and his wife, Margaret Arthur, who attended Peabody College.

THE MORTON C. JOHNSON SCHOLARSHIP FUND FOR HONOR STUDENTS was established in 1987 with a bequest from Mrs. Morton C. Johnson (B.A. 1921). The award provides full tuition.

THE ERNEST A. JONES SCHOLARSHIP was established in 1985 by family, colleagues, and friends to honor Professor Emeritus Ernest A. Jones (M.S. 1943). The scholarship is awarded to an outstanding student majoring in physics or astronomy.

THE CHARLES WICKLIFFE KENNERLY HONOR SCHOLARSHIP was established in 1986 by family members and the Owen Cheatham Foundation. It honors the memory of Charlie Kennerly, who died midway through his freshman year at Vanderbilt. The award provides full tuition.

THE JAMES C. LANCASTER HONOR SCHOLARSHIP was established in 1982 by Mr. James C. Lancaster (B.A. 1927).

THE MR. AND MRS. T. A. LOVELACE HONOR SCHOLARSHIP, established in 1985 by Mozart Lovelace (B.A. 1929) and his wife, pays tribute to the memory of his parents, Thomas Augustus and Beulah Campbell Lovelace. The scholarship is available to a student from Weakley, Carroll, Henry, or Obion counties in Tennessee.

THE MITCHELL S. AND MADELINE L. MAGID HONOR SCHOLARSHIP was established in 1997 with a bequest from Mitchell Magid and his wife, Madeline Lightman, a member of the Class of 1939. Their daughter, Emily, is a 1975 graduate of Peabody College. Award is based on academic merit and financial need.

THE DAVID C. MCDONALD SCHOLARSHIP was established in 2000 by the Rose-Marie and Jack R. Anderson Foundation in honor of Mr. and Mrs. Anderson's son-in-law. David C. McDonald was graduated from the College of Arts and Science in 1979. The scholarship will provide half-tuition.

WILLIAM A. AND NANCY F. MCMINN HONOR SCHOLARSHIPS IN THE NATURAL SCIENCES were established in 1993 by William A. McMinn, Jr. (B.A. 1952), and his wife, Nancy, to encourage students majoring in the natural sciences, with preference for those from underrepresented groups such as women or minorities who want to study physics. These full-tuition scholarships include a summer research stipend.

THE MARTIN F. MCNAMARA JR. HONOR SCHOLARSHIP was established in 1985 by the McNamara family to honor the memory of Martin F. McNamara, Jr. (B.A. 1932, L 1932). Preference is given to students from Kentucky.

THE MENDIK FAMILY SCHOLARSHIP was established in 2007 by Susan C. Mendik to provide need-based scholarship assistance to deserving undergraduate students at Vanderbilt.

THE COLEMAN D. OLDHAM HONOR SCHOLARSHIP was endowed with bequests from Coleman D. Oldham (B.A. 1924) and his sister, Emma C. Oldham, both of Richmond, Kentucky. It benefits students from Kentucky, with preference for those from Madison County.

THE CLAUDE AND VINCENETTE PICHOIS SCHOLARSHIP IN FRENCH LITERATURE was established in 1984 by Claude Pichois, Distinguished Professor of French, and his wife, Vincenette. The scholarship supports graduate and undergraduate study of French and may include awards to junior or senior French majors who are participating in the Vanderbilt in France program in Aix. For more information, contact the chair of the French department.

THE PUGH-HERNANDEZ SCHOLARSHIP was established in 1980 by Mr. Robert D. Pugh to honor his daughter and son-in-law. An award is made annually to a student attending the Vanderbilt in Spain program. For more information, contact the director of study abroad programs.

THE RUTH AND G. A. PURYEAR HONOR SCHOLARSHIPS were established in 1994 with a bequest from Ruth Burr Puryear (B.A. 1928), who died in 1993. The scholarships honor Mrs. Puryear and her husband, a graduate in the class of 1928.

THE FRANK C. RAND SR. AND NORFLEET H. RAND HONOR SCHOLARSHIP was established in 1985 with a bequest from Mr. Rand (B.A. 1934), a member of the Vanderbilt Board of Trust from 1966 to 1978.

THE JAMES C. AND LISTON ROBERTS HONOR SCHOLARSHIP was established in 1982 by Mr. James C. Roberts (B.A. 1934) and his son, J. Liston Roberts (B.A. 1965).

THE RUSSELL LEE RUA HONOR SCHOLARSHIP was established in 1983 by Mr. and Mrs. Ernest Rua in memory of their son, Russell (B.A. 1978).

THE FRED RUSSELL–GRANTLAND RICE SCHOLARSHIP IN SPORTS JOURNALISM (established in 1956 as the Thoroughbred Racing Association–Grantland Rice Memorial Scholarship) was renamed after it was endowed in 1986 by Charles J. Cella as a tribute to Fred Russell (B.A. 1927) and Grantland Rice (B.A. 1901), two of America's most distinguished sports writers. Recipients of this award are selected based on strong writing skills and an interest in sports journalism. Applications may be obtained from the Office of Undergraduate Admissions.

THE CLIFTON AND RENEE PRICE SMITH HONOR SCHOLARSHIP was established in 1983 by Dr. and Mrs. Smith, both graduates in the class of 1965.

THE STRAYHORN HONOR SCHOLARSHIP was endowed in 1986 by Mrs. Elizabeth Strayhorn Walsh (B.A. 1924) in memory of her father, William David Strayhorn (B.A. 1897), and her three brothers: William D. Strayhorn, Jr. (B.A. 1925, M.D. 1928), Joseph M. Strayhorn (B.A. 1930, M.D. 1933), and Eugene H. Strayhorn (B.A. 1935, J.D. 1938).

THE BARBARA AND FREDERICK R. SUITS HONOR SCHOLARSHIP was created in 1986 with a bequest from Barbara Suits in memory of her husband, Frederick (B.A. 1937).

THE BROOKE VAN DER LINDEN MEMORIAL SCHOLARSHIP FUND was established in 1989 by family and friends in memory of Brooke Van Der Linden (B.A. 1985) to assist a Vanderbilt undergraduate in attending study abroad programs in London.

THE EUGENE H. VAUGHAN UNDERGRADUATE RESEARCH ASSISTANTSHIP IN GEOLOGY was endowed in 1999 by Mr. and Mrs. Ernest J. Cockrell to honor Eugene H. Vaughan (B.A. 1955), a member of the Vanderbilt University Board of Trust since 1972. It is awarded to earth and environmental sciences majors who demonstrate exceptional potential and motivation for conducting high quality research. Financial need is a

consideration. Inquiries should be directed to the chair of the Department of Earth and Environmental Sciences.

JESSE WILLS HONOR SCHOLARSHIPS were established in 1985 by the Wills family to honor the memory of Jesse Ely Wills (B.A. 1922), one of Vanderbilt's "Fugitive" poets. He was a life member of the Vanderbilt Board of Trust and, for ten years, chairman of the board of the Joint University Libraries. These full-tuition scholarships include a summer stipend.

THE GEORGIA WILSON HONOR SCHOLARSHIP was established in 1982 by John W. Wilson as a memorial to his wife, who graduated from Vanderbilt in 1928.

THE REBECCA AND SPENCE WILSON SCHOLARSHIP was endowed in 1998 by Spence Wilson (B.A. 1964) and his wife, Rebecca Webb Wilson (B.A. 1965) to provide scholarship support to deserving undergraduates in the College of Arts and Science who will add to the diversity at Vanderbilt and who have financial need. Preference will be given to students from Memphis who demonstrate leadership potential and academic achievement.

Blair School of Music Honor Scholarships

THE MARIANNE BYRD SCHOLARSHIP was established in 2007 by Marianne Menefee Byrd (B.A. 1978) to provide merit-based assistance to a student in the Blair School of Music, preferably one who exhibits financial need.

THE FRANCES HAMPTON CURREY MUSIC SCHOLARSHIP was established in 1987 in memory of Mrs. Frances H. Currey by members of her family: Mr. Brownlee O. Currey, Jr. (B.A. 1949), and Mrs. Currey, and Mrs. Jesse Henley. The award provides full tuition.

THE LAURA KEMP GOAD HONOR SCHOLARSHIP was established in 1987 to honor Laura Kemp Goad by members of her family: Mr. Cal Turner, Sr. (E 1937), and Mrs. Turner; Mr. Cal Turner, Jr. (B.A. 1962), and Mrs. Turner; Mr. Steve Turner (B.A. 1969) and Mrs. Turner; Mrs. Laura Jo Turner Dugas and Mrs. Elizabeth "Betty" Turner Campbell. Preference is given to a student majoring in piano. The award provides full tuition.

THE MARTHA RIVERS INGRAM SCHOLARSHIP was established in 2006 by Martha Rivers Ingram, chairman of Vanderbilt's Board of Trust, to provide scholarship assistance to students in the Blair School of Music.

THE WILLIAM W. AND SAIDEE L. JARRELL SCHOLARSHIP was established in 1996 with a bequest from Anne J. Segars (A 1929) to honor her parents. She was Georgia's first female state commissioner. Her mother, a 1904 magna cum laude graduate, was an avid social crusader. Her father received a Vanderbilt medical degree in 1901 and practiced medicine in Thomasville.

THE ENID MILLER KATAHN PIANO SCHOLARSHIP was established in 1987 as the Rae S. Miller Piano Scholarship by Martin Katahn and his wife, Blair School professor of piano Enid Miller Katahn (M.Mus. 1970), to honor the memory of her mother, Rae S. Miller, and to encourage excellence in piano. In 2007, the scholarship was renamed to honor Enid Katahn.

THE MARION A. KATZ MUSIC SCHOLARSHIP was established by Peter and Marion Katz to be awarded to a cello student in the Blair School of Music.

THE WILDA T. AND WILLIAM H. MOENNIG JR. MEMORIAL SCHOLARSHIP was established in 1987 by Wilda Tinsley Moennig in memory of her husband, Blair's distinguished master luthier. The award is given to a strings major. Mrs. Moennig died in October 2007.

THE DEL SAWYER TRUMPET SCHOLARSHIP was established in 1993 by the Justin and Valere Potter Foundation to honor the service of John F. "Del" Sawyer, founding director of Blair Academy in 1964 and dean of the Blair School of Music from 1984 until 1993.

THE HAROLD STIRLING VANDERBILT HONOR SCHOLARSHIP honors the memory of Harold Stirling Vanderbilt, great-grandson of Commodore Cornelius Vanderbilt and president of the University's Board of Trust from 1955 to 1968. It is awarded to an entering freshman music major based on musical and academic achievement and promise.

THE WILMA WARD SCHOLARSHIP was established in 2008 through a bequest from Wilma Ward of Nashville, Tennessee, to provide scholarship support to undergraduate students enrolled in the Blair School of Music. She was a long-time friend and generous supporter of the Blair School where a courtyard was dedicated to her in 2003. A portrait of her hangs near the entry to the courtyard.

THE ANNE POTTER WILSON HONOR SCHOLARSHIPS were established in 2007 through a trust established by the late Vanderbilt trustee David K. Wilson (B.A. 1941) to honor the memory of his wife, Anne Potter Wilson, and to provide scholarship support based on merit to undergraduate students in the Blair School of Music.

THE BARBARA B. AND J. LAWRENCE WILSON SCHOLARSHIP was established in 2007 by Barbara Burroughs Wilson (B.A. 1958) and Vanderbilt University Trustee J. Lawrence Wilson (B.E. 1958) to provide scholarships to worthy students in the College of Arts and Science.

THE LINDE B. WILSON SCHOLARSHIP was established in 2009 by Blair J. Wilson (B.A. 1974) to honor his wife, Linde B. Wilson (B.A. 1973, M.L.S. 1976), and to provide scholarship support for deserving undergraduate students at the Blair School of Music.

THE GREGORY B. WOOLF SCHOLARSHIP was originally a loan fund established at Peabody College in 1971 by family and friends to honor the memory of Gregory B. Woolf, a music faculty member at George Peabody College. The fund was moved to the Blair School of Music in 1987. It was endowed as a scholarship in 1998. First preference is given to students majoring in composition and theory, with second preference given to students majoring in piano.

School of Engineering Honor Scholarships

THE CRENSHAW W. AND HOWELL E. ADAMS SR. MEMORIAL SCHOLARSHIP was established in 1968 by Howell E. Adams, Jr. (B.E. 1953), his brother Thomas E. Adams (B.E. 1958), and his sister, Mrs. Dabney Hart (M.A. 1949) in memory of their father, Howell Adams (E 1916) and their mother, Crenshaw W. Adams.

THE NANCY AND BRUCE M. BAYER HONOR SCHOLARSHIP was established in 2000 by Professor Emeritus Bruce M. Bayer (Founder's Medalist, B.E. 1935). During his tenure, Professor Bayer served as chair of the Department of Mechanical Engineering.

THE CHARLES K. BRUCE SCHOLARSHIP was established in 1972 under the will of Allenda Webb Bruce as a memorial to her husband, an engineering alumnus and Founder's Medalist in the class of 1912.

THE ALEX J. BULLINGTON MEMORIAL SCHOLARSHIP was established in 1995 to honor the memory of Alex J. Bullington (B.E. 1993, cum laude) who died in a 1995 automobile accident. The endowment was funded by gifts from the family and friends of both Alex and his grandfather, John M. Swalm, Jr., who had planned to create the scholarship, but also died in 1995, before he could do so.

THE RUSSELL C. CHAMBERS SCHOLARSHIP was established in 2006 by the Chambers Medical Foundation of Lake Charles, Louisiana, to honor the memory of Russell C. Chambers, father of Jason Russell Chambers (B.S. 2000, MBA 2001), and to provide scholarship support based on academic merit to deserving undergraduate students enrolled in the School of Engineering. Preference in awarding should be given to students majoring in biomedical engineering. Consideration may be given to a student with financial need.

THE ALETHA AND THAD DORSEY SCHOLARSHIP was endowed in 1992 with a bequest from Thad L. Dorsey (B.E. 1925).

THE DOUG DURANDO SCHOLARSHIP was established in 2002 by friends and classmates to honor the memory of Doug Durando (B.S. Engineering 1991). Doug died in the spring of 2001 and is remembered by

many for "his loyalty to family and friends, overwhelming generosity, fun-loving spirit, sense of humor, and especially his love of life at Vanderbilt." The scholarship will provide full tuition to an incoming student based on academic merit with financial need.

THE ENGINEERING MINORITY SCHOLARSHIP was established in 1976 with gifts from E. I. du Pont de Nemours & Company and the Gulf Oil Foundation.

THE BRUCE AND BRIDGITT EVANS, CLASS OF 1981, HONOR SCHOLARSHIP was established in 2006 by the Evans Family Foundation, on the occasion of the twenty-fifth reunion of Bruce R. Evans (B.E. 1981) and in gratitude for the scholarship financial assistance provided to him by Vanderbilt during his years as an undergraduate student, to provide scholarship support to deserving undergraduates in the School of Engineering based on academic merit.

THE ABRAHAM AND RUTH FRIEDMAN SCHOLARSHIP was established in 2011 by Ellen Sue Levy (Ph.D. 2004) and Gregg M. Horowitz to provide need-based scholarship support for deserving undergraduate students in the College of Arts and Science with preference in awarding given to students with substantial financial need.

PAUL HARRAWOOD HONORS UNDERGRADUATE SCHOLARSHIPS were established in 1986 by the late Professor Emeritus J. Dillard Jacobs, Jr. (Founder's Medalist, B.E. 1932), in recognition of the nineteen years of outstanding leadership given by Dean Paul Harrawood to the School of Engineering. Harrawood was dean from 1979 to 1986 and associate dean prior to that time. He joined the faculty in 1967. The award provides full tuition.

THE ORRIN HENRY INGRAM SCHOLARSHIP IN ENGINEERING MANAGEMENT was established by the family of Orrin Henry Ingram to honor his memory and to provide scholarship support to students in the School of Engineering who are studying engineering management. His son, E. Bronson Ingram, was a member of the Vanderbilt Board of Trust for many years and served as its chairman from 1991 to 1995. His daughter-in-law, Martha Ingram, served in that position from 1995 to 2011.

THE DILLARD JACOBS SCHOLARSHIP was established in 1974 by the late Professor Emeritus J. Dillard Jacobs, Jr. (Founder's Medalist, B.E. 1932), who taught mechanical engineering from 1947 until his retirement in 1976. Preference is given to former students of Presbyterian College in South Carolina or children of current faculty members of that institution.

THE CLAYTON KINCAID MEMORIAL SCHOLARSHIP was established in 1982 with a bequest from Mr. Kincaid.

THE FRED J. LEWIS SOCIETY SCHOLARSHIP was established in 1996 with contributions from Lewis Society members, including a gift from Edmund C. Rogers (B.E. 1929), who died in 1996, and a gift from Mrs. Helen P. Glimpse in honor of her son, Steven B. Glimpse (B.E. 1969). The Fred J. Lewis Society is a donor society honoring Fred Justin Lewis, who served as dean of the School of Engineering from 1933 to 1959.

THE RICHARD E. MARTIN SCHOLARSHIP was established in 1995 through the trust of Clata Ree Martin Brent (P.B.S. 1955, M.A.L. 1962) to honor the memory of her father. He was a close friend of Professor William H. Rowan, Sr. (B.E. 1926), who taught in the School of Engineering for twenty-six years.

THE MCCLESKEY HONOR SCHOLARSHIP was endowed in 1998 by Samuel W. McCleskey (B.E. 1951). He attended Vanderbilt on a scholarship. This scholarship benefits well-rounded individuals who clearly demonstrate broad-based interests.

THE WILSON L. AND NELLIE PYLE MISER SCHOLARSHIP FUND was established in 1965 by Professor Miser, who taught mathematics to engineers from 1925 until his retirement in 1952. The fund provides an award to a student studying engineering or applied mathematics.

THE LINDA CRANK MOSELEY SCHOLARSHIP was established in 2012 by Linda Crank Moseley (B.A. 1948) to provide need-based scholarship support to undergraduate students enrolled in the College of Arts and Science.

THE GEORGE W. F. MYERS SCHOLARSHIP was endowed in 1991 with a bequest from George Myers, an engineer from St. Louis, Missouri.

THE DANIEL ROBINSON MEMORIAL SCHOLARSHIP was endowed in 1996 with contributions from Andersen Consulting and from the Robinson family and their friends to honor the memory of Daniel Burwell Robinson (B.E. 1994) who died in 1995. He was an analyst at Andersen Consulting of Nashville. The scholarship benefits juniors or seniors who are interested in business technology and who are majoring in computer science, engineering science, civil engineering, electrical engineering, or mechanical engineering.

THE WILLIAM H. ROWAN SCHOLARSHIP was endowed in 1969 by family and friends to honor Professor William H. Rowan, Sr. (B.E. 1926), who taught civil engineering in the School of Engineering from 1946 until his retirement in 1968. The scholarship is available to engineering students who compete in minor intercollegiate sports while at Vanderbilt.

THE W. D. SEYFRIED HONOR SCHOLARSHIP was established in 1986 by W. D. Seyfried (B.E. 1938).

THE TERRANCE C. SLATTERY SCHOLARSHIP IN ENGINEERING was established in 2001 by Terrance C. Slattery (B.E. 1975) to provide honor scholarships to deserving undergraduates enrolled in the School of Engineering.

THE GEORGE A. SLOAN SCHOLARSHIP was established in 2001 by the United States Steel Foundation to honor George A. Sloan and to provide scholarships based on academic merit to deserving undergraduates with preference to those with one or more parents employed by the United States Steel Foundation.

THE A. MAX AND SUSAN S. SOUBY SCHOLARSHIP was established in 1976 by Armand Max Souby, Jr. (B.E. 1938) to honor his parents. The fund provides an award for a student majoring in chemical engineering.

THE JAMES WILLIAM STEWART JR. HONOR SCHOLARSHIP was established in 1978 by James W. Stewart (B.E. 1949) and his wife in memory of their son, Jim, Jr. (B.E. 1973). The award provides tuition at the freshman-year tuition level.

THE LADY JEAN BARKER TATUM HONOR SCHOLARSHIP was established in 1988 by Joseph F. Tatum, Sr. (B.E. 1945) to honor the memory of his late wife, Lady Jean Tatum (B.A. 1946).

THE KAREN TODD SCHOLARSHIP was established in 1982 by the parents of Karen Dawn Todd (B.S. 1980) to honor their daughter, who was a Stewart Scholar.

THE COLONEL CHARLES M. AND LOUISE D. TURNER SCHOLARSHIP was endowed in 1992 with a bequest from Charles Turner (B.E. 1925, M.E. 1931).

THE UNITED STATES STEEL FOUNDATION HONOR SCHOLARSHIP was established in 1982 by the U.S. Steel Foundation to provide undergraduate scholarship assistance to matriculating students of high academic potential, financial need, and American citizenship with preference given to students pursuing degrees in engineering and the physical sciences.

THE BARBARA B. AND J. LAWRENCE WILSON SCHOLARSHIP was established in 2002 by Barbara Burroughs Wilson (B.A. 1958) and Vanderbilt University Trustee J. Lawrence Wilson (B.E. 1958) to provide scholarships to worthy students in the School of Engineering.

OTHER HONOR SCHOLARSHIPS IN ENGINEERING, providing from $1,000 to full tuition, are offered in limited number each year.

Peabody College Honor Scholarships

THE ANONYMOUS SCHOLARSHIP was endowed in 2002 to provide half-tuition honor scholarships to deserving undergraduates enrolled in Peabody College.

THE DOROTHY CATE FRIST HONOR SCHOLARSHIP was established in 1997 with a gift from the Dorothy and Thomas Frist Sr. Foundation and members of the Frist family. The fund honors Dorothy Cate Frist (P.B.S. 1932) and her lifetime commitment to education. The scholarship is awarded based on academic merit to students majoring in education.

THE JOEL C. GORDON HONOR SCHOLARSHIP was endowed in 1998 by William J. Hamburg, CEO of MediSphere Health Partners, to honor his

friend and mentor, Joel D. Gordon, chairman and CEO of The Gordon Group. The scholarship benefits a junior or senior who is majoring in human and organizational development with a focus on health care business or services. Preference is given to students who are participating in a health-care related internship. Financial need is a consideration. Inquiries should be addressed to the director of the Human and Organizational Development program.

THE INGRAM HONOR SCHOLARSHIP IN COMMUNITY LEADERSHIP AND DEVELOPMENT was established in 2002 by Orrin H. Ingram II, B.A. 1982, and member of the Vanderbilt University Board of Trust. The scholarship will be awarded to an undergraduate in Peabody College's Human and Organizational Development program and will include a semester-long internship working in a Boys and Girls Club site.

THE MITCHELL S. AND MADELINE L. MAGID HONOR SCHOLARSHIP was established in 1997 with a bequest from Mitchell Magid and his wife, Madeline Lightman, a member of the Class of 1939. Their daughter, Emily, is a 1975 graduate of Peabody College. Award is based on academic merit and financial need.

THE J. RIDLEY MITCHELL MEMORIAL SCHOLARSHIP was established in 1987 with a bequest from Olivia Hague Mitchell to honor the memory of her husband, John Ridley Mitchell, a Peabody Class of 1896 graduate. A native of Crossville, Tennessee, and a 1904 graduate of Cumberland University Law School, he was a Fourth District congressman from 1931 to 1941. He also served for many years as an assistant to the U.S. attorney general. He retired in 1953 and died in 1962. Mrs. Mitchell died in 1985.

THE JERE PHILLIPS HONOR SCHOLARSHIP was established in 1994 by Alton W. Phillips (B.A. 1957), Keith Phillips, and Warren Phillips to honor Jere Phillips (P.B.S. 1958), wife and mother. A tribute to Mrs. Phillips' contributions to the advancement of Peabody College, the scholarship is awarded to a rising senior who demonstrates academic merit and extraordinary qualities of leadership and community service.

THE REEVES HONOR SCHOLARSHIP II was established by the Reeves Foundation in 1997 to honor Katherine Mercer Reeves (B.S. 1992, M.Ed. 1993) to provide scholarships based on academic merit to deserving undergraduates who major in early childhood education or elementary education.

THE SUSAN B. RILEY SCHOLARSHIP was established in 2006 by an anonymous donor to provide merit-based scholarship support to undergraduate students enrolled in Peabody College. This scholarship honors Susan B. Riley who, as chair of the English department, was Peabody's first woman chair outside of the home economics department and served as the first dean of Peabody's Graduate School before retiring. She was also president of the American Association of University Women.

THE ROGERS FAMILY SCHOLARSHIP was established in 2006 by Brian and Mary Jo Rogers, parents of Hilary Ann Rogers (B.S. 2008) and Peter Daniel Rogers (B.S. 2010), to provide awards based on academic merit to students enrolled in Peabody College.

THE SCHWAB FAMILY SCHOLARSHIP was established in 2005 with a gift from the Charles C. Schwab family. This annually funded scholarship benefits undergraduate students in Peabody College based on academic merit with financial need.

THE WEEKLEY FAMILY SCHOLARSHIP was established in 2002 by Mr. and Mrs. David M. Weekley, parents of Peabody alumni Christopher David Weekley (B.S. 2003) and James William Weekley (B.S. 2009), to provide scholarship support based on academic merit to deserving undergraduate students enrolled in Peabody College. Their daughter, Robin Louise Weekley, graduated from the College of Arts and Science in 2005.

JOHN E. WINDROW HONOR SCHOLARSHIPS were established in 1982 by Dr. Arthur A. Smith (P.M.A. 1929, V.Ph.D. 1933) in memory of John E. Windrow, who devoted sixty years to Peabody College as archivist and historian. These full-tuition scholarships are available to students majoring in education.

Need-Based Financial Aid

Students who demonstrate financial need, as described in the Application Procedure, may qualify for need-based scholarships/grants, loans, and work assistance. The amount of aid will be determined by an annual evaluation of need, recalculated each year on the basis of updated financial information. The university attempts to fill the gap between the cost of attending Vanderbilt and the amount that students and their families are expected to contribute.

University General Sources of Need-Based Assistance

THE UNIVERSITY NEED-BASED AID PROGRAM makes grants available to applicants who need assistance to enroll or continue their study at Vanderbilt. These grants are based on demonstrated financial need. Students must apply each year as described under Application Procedure.

THE ALUMNI ASSOCIATION SCHOLARSHIP, initiated in 1977, is an endowed scholarship supported by gifts from the Alumni Association.

THE ANONYMOUS FAMILY C. SCHOLARSHIP was established in 2012 by an anonymous donor to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE ANONYMOUS FAMILY F. SCHOLARSHIP was established in 2013 by an anonymous donor to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE ANONYMOUS FAMILY W. SCHOLARSHIP was established in 2010 by anonymous donors to provide need-based scholarship support for deserving undergraduate students.

THE ANONYMOUS FOUNDATION SCHOLARSHIP was established in 2009 by an anonymous donor to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science and Peabody College.

THE ANONYMOUS G. SCHOLARSHIP was established in 2013 by anonymous donors to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE ANONYMOUS PAB SCHOLARSHIP was established in 2012 by anonymous donors to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE ASPIRE SCHOLARSHIP was established in 2012 by anonymous donors to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE ROBERT LEE AVARY III SCHOLARSHIP was established in 2007 by friends and classmates of Robert L. Avary III (B.E.1980) to honor his memory and to provide scholarship support to deserving undergraduate students based on financial need.

THE BERGER FAMILY SCHOLARSHIP was established in 2008 by Darryl D. Berger, B.A. 1969, a Vanderbilt trustee and community leader in New Orleans, to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt. Preference in awarding is given to students with high need from Orleans, Jefferson, or St. Tammany parishes in Louisiana. Secondary preference is given to students from St. Charles, St. Bernard, or Plaquemines parishes in Louisiana.

THE BRANDON BROOKS BERGER SCHOLARSHIP was established in 2012 by Darryl D. Berger, B.A. 1969, a Vanderbilt trustee and community leader in New Orleans, to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt. Preference in awarding is given to students with high need from Orleans, Jefferson, or St. Tammany parishes in Louisiana. Secondary preference is given to students from St. Charles, St. Bernard, or Plaquemines parishes in Louisiana. Mr. Berger created the fund in honor of his son, Brandon Brooks Berger, B.A. 2003.

THE DARRYL DAVID BERGER JR. SCHOLARSHIP was established in 2012 by Darryl D. Berger, B.A. 1969, a Vanderbilt trustee and community leader in New Orleans, to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt. Preference in awarding is given to students with high need from Orleans, Jefferson, or St. Tammany parishes in Louisiana. Secondary preference is given to students from St. Charles, St. Bernard, or Plaquemines parishes in Louisiana. Mr. Berger created the fund in honor of his son, Darryl David Berger Jr., B.A. 2002.

THE RYAN REECE BERGER SCHOLARSHIP was established in 2012 by Darryl D. Berger, B.A. 1969, a Vanderbilt trustee and community leader in New Orleans, to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt. Preference in awarding is given to students with high need from Orleans, Jefferson, or St. Tammany parishes in Louisiana. Secondary preference is given to students from St. Charles, St. Bernard, or Plaquemines parishes in Louisiana. Mr. Berger created the fund in honor of his son, Ryan Reece Berger, B.A. 2005.

THE BIG APPLE CHALLENGE SCHOLARSHIP was established in 2007 by alumni from the New York City metropolitan area to provide scholarship support based on financial need to undergraduates from that area.

THE MORRIS BRANDON SCHOLARSHIP was established in 1942 by the Atlanta Alumni Club to honor the memory of Morris Brandon and to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE ENOCH BROWN SCHOLARSHIP FUND was established in 1963 by Elizabeth Eggleston Brown in memory of her husband, Enoch Brown, Jr. (B.A. 1914, L 1916), noted publisher and Vanderbilt trustee. Preference is given to applicants from Williamson and Shelby counties in Tennessee.

THE INNIS AND MARGUERITE BROWN MEMORIAL SCHOLARSHIP was established in 1974 by the will of Marguerite S. Brown to honor the memory of her husband, William Innis Brown (B.A. 1906). Preference is given to students who combine the fields of athletics and journalism. Recipients are encouraged, but not required, to repay the amount of scholarship assistance received.

THE CARTMELL SCHOLARSHIP was established in 1876 by the will of W. M. Cartmell. This scholarship is unique in that the recipient must be elected by the voters of the City of Lebanon, Tennessee, during regular municipal elections held every two years. The recipient must be a resident of Wilson County or Lebanon, Tennessee, and meet certain other requirements specified in the will. Further information is available in the Office of Student Financial Aid.

THE NORA C. CHAFFIN SCHOLARSHIP FUND was established in 1956 by the Women's Student Government Association to honor Miss Chaffin, who was the dean of women at Vanderbilt for twelve years. Recipients are chosen from the junior class by a selection committee. The award is based on service to the university in the areas of student government and the arts, and religious, literary, and scholastic activities.

THE CHELLGREN FAMILY SCHOLARSHIP was established in 2000 by Mr. and Mrs. Paul W. Chellgren to honor their three children: Sarah (B.A. 1995), Matthew (B.A. 1996), and Jane (B.S. 1999). The scholarship benefits undergraduates in the College of Arts and Science and Peabody College who are residents of Kentucky.

THE CINCINNATI SCHOLARSHIP was established in 2008 by anonymous donors to provide need-based scholarship support to deserving undergraduate students enrolled in any of Vanderbilt's undergraduate schools with preference to students from the Cincinnati, Ohio, metropolitan area.

THE PRISCILLA CALL CRAVEN SCHOLARSHIP was established in 2006 by Suzanne Perot McGee (B.S. 1986) in honor of her twentieth class reunion and in honor of her friend and classmate, Priscilla Call Craven (B.A. 1986) who is a professor at the University of Colorado. The scholarship provides need-based support to deserving undergraduate students in the College of Arts and Science and Peabody College with preference given to incoming freshmen who have an interest in the humanities.

THE ROBERT L. CRAWFORD MEMORIAL SCHOLARSHIP was established in 1939 to provide scholarship support based on financial need to deserving undergraduate students. First preference in awarding is given to students from Mobile, Alabama, with secondary preference to students from Alabama. The scholarship was first created in 1887 as annually funded assistance by Mr. Crawford who was the brother of Mrs. F. A. Vanderbilt.

THE DICK AND BARBARA DAVIS FAMILY SCHOLARSHIP was established in 2005 by Richard H. Davis (B.E. 1969) and Barbara C. Davis (B.S.N. 1969) to provide annual scholarship support to deserving undergraduate students enrolled in the College of Arts and Science or the School of Engineering.

THE JAMES H. DILLARD SCHOLARSHIP was established in 2012 through the bequest of James H. Dillard to provide support based on financial need for deserving undergraduate students at Vanderbilt. Mr. Dillard was an honorary member of the Class of 1908.

THE DOUGAN FAMILY SCHOLARSHIP was established in 2011 by Brady W. Dougan to provide need-based financial support to deserving undergraduate students at Vanderbilt.

THE DUNCAN SCHOOL MEMORIAL SCHOLARSHIP was established in 1965 by the Duncan School Memorial Foundation to provide scholarship assistance to male graduates of Nashville or Davidson County high schools.

THE EDSCHOLAR SCHOLARSHIP PROGRAM was established in 2003 by Educational Services of America, Inc. ("edamerica") to expand access to higher education in the state of Tennessee through scholarship grants.

THE EPSTEIN FAMILY SCHOLARSHIP was established in 2006 by Irving Kenneth Epstein to provide scholarship support to deserving undergraduate students.

THE ESSERMAN FAMILY SCHOLARSHIP was established in 2010 by Ivette C. Esserman and Charles H. Esserman to provide need-based financial support to deserving undergraduate students at Vanderbilt.

THE FELIX MEMORIAL SCHOLARSHIP was established in 1967 by Charles B. Kniskern, Jr. (B.A. 1941), in memory of his maternal grandfather, Frank L. Felix, and his uncle, Douglas E. Felix. Recipients are encouraged to repay the amount received.

THE BERNARD FENSTERWALD MEMORIAL FUND was established in 1951 by Mrs. Fensterwald (Blanche Lindauer) in memory of her husband, a graduate of the class of 1911 and a member of the Vanderbilt Board of Trust.

THE WILLIAM L. AND MARY WELLFORD FORD FAMILY SCHOLARSHIP was established in 2007 by William L. Ford III (B.A. 1953) and Mary Wellford Ford (B.A. 1957) of Ada, Michigan, to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science and Peabody College with preference to students from the Greater Grand Rapids, Michigan, area, then Western Michigan, followed by students from the State of Michigan, and then the Memphis, Tennessee, metropolitan area. The scholarship rotates between the schools every four years.

THE FREEMAN-STRINGER MEMORIAL SCHOLARSHIP was established in 1965 by Mrs. William K. Stringer (Nancy Freeman) as a memorial to her father, Judge Robert Wesley Freeman (B.S. 1879), and to her deceased son, William Kenneth Stringer, Jr. (B.A. 1932).

THE HAROLD AND ELIZABETH FRIEDMAN SCHOLARSHIP was established in 2011 through a bequest gift from Elizabeth Hirsch Friedman (B.A. 1938) to provide scholarships based on financial need to undergraduate students at Vanderbilt. Preference in awarding should be given to students from Tennessee who have a desire to pursue a field of study that will promote the economic, scientific, or social growth of our country.

THE FRIENDS OF VANDY 2013 SCHOLARSHIP was established in 2010 by anonymous donors to provide need-based scholarship support for deserving undergraduate students.

THE GHAF SCHOLARSHIP was established in 2011 by anonymous donors to provide need-based scholarship support to deserving undergraduate students at Vanderbilt. The scholarship honors the service of John S.

Beasley II (B.A. 1952, J.D. 1954) who serves as Vice Chancellor for Development and Alumni Relations, Emeritus, and Counselor to the Chancellor. Throughout Mr. Beasley's Vanderbilt career, he has been instrumental both in providing fundraising support for the university and in befriending and encouraging countless students, families, and alumni.

THE GRATEFUL ALUMNI PARENT SCHOLARSHIP was established in 2011 by anonymous donors to provide scholarship support based on financial need to deserving students in the College of Arts and Science, the School of Engineering, and Peabody College.

THE ROBIN, DANNY, AND JAMES GREENSPUN SCHOLARSHIP was established in 2007 by Robin S. Greenspun, Daniel A. Greenspun, and James "Jamie" A. Greenspun (B.A. 2006) to provide need-based scholarship support for deserving undergraduate students at Vanderbilt University.

THE JAMES A. HARPER FAMILY SCHOLARSHIP was established in 2009 by Zo Pennington Harper and James A. Harper (B.A. 1969) to provide need-based financial support to deserving undergraduate students. Preference is given to students in their junior or senior years majoring in the following: biological sciences; biomedical engineering; chemical and biomolecular engineering; civil and environmental engineering, chemistry; communication of science and technology; computer engineering; computer science; earth and environmental sciences; evolution and organismal biology; economics; electrical engineering; engineering management; engineering science; materials science; mathematics; mechanical engineering; medicine, health, and society; molecular and cellular biology; neuroscience; physics; psychology; sociology or special education. In addition, preference is given to students who have or are currently participating in work study. The Harpers also desire to assist students who have made an impact on the university community through leadership positions in campus organizations and who have an interest in pursuing careers in the health care field.

THE IRENE AND THOMAS HARRINGTON INTERNATIONAL UNDERGRADUATE SCHOLARSHIP was established in 2006 with a gift from Thomas M. Harrington (B.A. 1961) and his wife, Irene Pinkus Harrington, of Paris, France, to provide financial assistance to international students enrolled full time in any of Vanderbilt's four undergraduate schools. Preference is given to students from France, with second preference to students from the European Union.

THE CHARLES V. HARRIS SCHOLARSHIP was endowed in 1993 with a bequest from Charles V. Harris, formerly of Jackson, Tennessee. His will also established scholarships at Lambuth College and Union University in Jackson. Preference is given to students from Madison County and other West Tennessee counties outside of Shelby County.

THE HASSELL SCHOLARSHIP was established in 1995 through a trust given by Thomas Frank Hassell, a member of the class of 1920. He died in 1988. Preference is given to students from Decatur, Hardin, Lawrence, Lewis, McNairy, Perry, and Wayne counties in Tennessee.

THE BARBARA ASKEW HAYNES SCHOLARSHIP IN MEMORY OF KIT HILL HAYNES was established in 2003 with a bequest from Barbara Askew Haynes in memory of her husband, Kit Hill Haynes (B.A. 1933), to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt with preference to students in their junior or senior year.

THE RONALD E. AND ANNE S. HENGES FAMILY SCHOLARSHIP was established in 2005 by Anne Sterry Henges (A. 1956) and Ronald E. Henges (B.A. 1954) to provide scholarship assistance to deserving undergraduate students in the College of Arts and Science, the School of Engineering, and Peabody College. Preference should be given to students from the greater St. Louis, Missouri, area.

THE HENNES FAMILY SCHOLARSHIP was established in 2006 by Duncan and Laura Hennes to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science and the School of Engineering. The donors created the fund in honor of their son William ("Will") Hennes, a 2006 graduate of the School of Engineering, and their son Duncan Hennes Jr. ("D. J."), a 2009 graduate of the College of Arts and Science.

THE FRANK K. HOUSTON SCHOLARSHIP was established in 1974 with a bequest from Frank Houston (B.A. 1904). He was a member of the Vanderbilt Board of Trust from 1937 until his death in 1973. Preference is given to students from the counties of Bedford, Cannon, Coffee, DeKalb, Lincoln, Marshall, Moore, Rutherford, and Wilson in Tennessee.

THE PAUL E. HUSSEY SCHOLARSHIP was established in 1961 with a bequest from Paul Hussey (B.A. 1917). Preference is given to students residing in Montgomery County, Tennessee.

THE JOHN A. HYDEN SCHOLARSHIP was established in 2012 by Shirley J. Parrish (B.A. 1961) and Edward A. Parrish, Jr., to provide scholarship support based on financial need to undergraduate students in the College of Arts and Science and the School of Engineering. The scholarship will rotate every four years between the two schools. Preference in awarding will be given to any student in the School of Engineering, and to a student(s) majoring in mathematics in the College of Arts and Science for their junior and senior years. Donors make this gift in honor of Dr. John A. Hyden, former professor of mathematics, in conjunction with Mrs. Parrish's 50th reunion of the Class of 1961, and Dr. Parrish's service as dean of the School of Engineering and Centennial Professor of Electrical Engineering from 1987 to 1995.

THE INGRAM INDUSTRIES SCHOLARSHIP was established in 2008 by Ingram Industries Inc. of Nashville, Tennessee, to encourage dependents of Ingram associates to apply and attend Vanderbilt for their undergraduate education. The scholarship will be awarded based on financial need in accordance with university-defined criteria. If there are no eligible candidates with financial need, the scholarship will be awarded based on academic merit.

THE JLM SCHOLARSHIP was established in 2007 by anonymous parents to provide need-based scholarship support to deserving undergraduate students in the College of Arts and Science and the School of Engineering and to deserving students in the Law School. The scholarship rotates among the three schools.

THE JPM SCHOLARSHIP was established in 2011 by anonymous donors to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt University.

THE I. LEONARD JAMES SCHOLARSHIP was established in 1968 with a bequest from Mrs. James (Eva Valodin) in memory of her husband, Isaac Leonard James (Pharmacy 1904).

THE JOHN W. AND ANN JOHNSON SCHOLARSHIP was established in 1978 by Mr. and Mrs. Willard M. Johnson to honor their son and daughter-in-law, both Vanderbilt graduates. Preference is given to students from Fentress, Morgan, Scott, Cumberland, Roane, Overton, and Pickett counties in Tennessee.

THE LEOPOLD AND PAULINE KAUFMAN SCHOLARSHIP was initiated in 1938 by E. R. Kaufman (B.A. 1909) and his sister Bessie Kaufman Mayer to honor their parents. It was annually funded by their descendants until it was endowed in 1995 by Mrs. Mayer's grandson, Ivan Mayer (B.E. 1936). The scholarship is available to students from Louisiana who are enrolled in the College of Arts and Science or the School of Engineering.

THE KEITH-GLASGOW SCHOLARSHIP was established in 1966 with a bequest from Mrs. Samuella Keith Glasgow in memory of her father, Samuel Keith, and her husband, Dr. Samuel McPheeters Glasgow.

THE KIM FAMILY SCHOLARSHIP was established in 2011 by Terri L. Kim and Richard K. Kim to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE JOHN WALTON KNIGHT SCHOLARSHIP was endowed in 1999 with distributions from the Jane K. Lowe Charitable Trust, established by Mrs. Jane Knight Lowe of Huntsville, Alabama. The scholarship honors her father. First preference is given to students from Huntsville, Alabama. Secondary preference is given to students from the state of Alabama.

THE ISABEL AND ALFRED W. LASHER SCHOLARSHIP was established in 1968 by Alfred W. Lasher, Jr. (A 1942), in memory of his parents. The

scholarship is awarded to students from (1) Houston, (2) Harris County, (3) the state of Texas, in that order of preference.

THE DR. J. OWSLEY MANIER SCHOLARSHIP was established in 1955 to honor the memory of Dr. Manier (B.A. 1907), professor emeritus of clinical medicine at the Vanderbilt School of Medicine. First preference is given to students from Giles County, Tennessee, with second preference to residents of other Middle Tennessee counties.

THE MARGOLIS FAMILY SCHOLARSHIP was established in 2008 by Paul and Diane Margolis to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science and Peabody College.

THE ALLEN AND RUTH MCGILL SCHOLARSHIP was established by Allen L. McGill (B.A.1916) and Ruth Conklin McGill. Mr. McGill's father, Dr. John T. McGill (B.A. 1879, Ph.D. 1881), was professor emeritus of chemistry and dean of the School of Pharmacy. The scholarship is available to students enrolled in the College of Arts and Science or the School of Engineering.

THE MCNICHOLS-OWEN VANDERBILT SCHOLARSHIP was established in 1983 by the will of Mable McNichols Owen in memory of members of her mother's family, many of whom attended Vanderbilt.

THE MENDIK FAMILY SCHOLARSHIP was established in 2007 by Susan C. Mendik to provide need-based scholarship assistance to deserving undergraduates enrolled in Peabody College and the College of Arts and Science.

THE DOROTHY L. MINNICH MEMORIAL SCHOLARSHIP honors the memory of Dorothy L. Minnich, who was associate dean for student services at the time of her death in 1974.

THE THOMAS E. MITCHELL SCHOLARSHIP, established with a bequest in 1931, is awarded to residents of the state of Georgia.

THE ELISE WALLACE MOORE SCHOLARSHIP was endowed in 1998 with a bequest from Sara Walker Moore in memory of her sister, Elise (B.A. 1923). Their mother, Fannie Goodlet Moore, a graduate in the class of 1893, was one of the first women to attend Vanderbilt.

THE MOORE FAMILY SCHOLARSHIP was established in 2007 by Vanderbilt University trustee Jackson W. Moore (J.D. 1973) to honor his two children, Shellye (B.S. 2002) and Jackson Jr. (MBA 2003), and to provide need-based scholarship support to deserving undergraduate students enrolled in Peabody College and the College of Arts and Science. Preference in awarding is given to students from Alabama and Tennessee in hopes that, following graduation from Vanderbilt, they will choose to live in these states.

THE KEITH W. MUMFORD SCHOLARSHIP was established in 2010 by friends and classmates in memory of Keith W. Mumford, B.A. 1990, who died in 2009 at the age of 41, leaving behind his wife, Emily, and four children, Anne Frazier, Mary Elizabeth, Sally Sackett, and Henry Warren. The fund provides scholarship support based on financial need to deserving undergraduate students.

THE WILLIAM NORTHERN SCHOLARSHIP was established in 1944 through gifts from the Officers Club of William Northern Field, Tullahoma, Tennessee, to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt. William Lee Northern Jr. was a native Tennessee flyer and was the first Tennessean killed in WWII in the Pacific.

THE OPENING DOORS SCHOLARSHIP was established in 2010 by anonymous donors to provide need-based financial support to deserving undergraduate students.

THE JAMES ELMO OVERALL SCHOLARSHIP was established in 1966 by Dr. Nadine Webb Overall (B.A. 1915, M.A. 1925) and her brother, John R. Overall (E 1923), in memory of their oldest brother, James Elmo (B.A. 1913, M.A. 1914).

THE PALLOTTA FAMILY SCHOLARSHIP was established in 2008 by James J. Pallotta to provide need-based scholarship support to deserving undergraduate students enrolled in any of the four undergraduate schools.

THE PARENTS' SCHOLARSHIP was endowed in 1976 and continues to be enlarged with gifts from parents in appreciation for the scholarships received by their sons and daughters when they were students at Vanderbilt.

THE WILLIAM H. AND HAMILTON PARKS SCHOLARSHIP was established in 1979 with gifts from William H. Parks (A 1907) and his son, Hamilton (A 1945). The scholarship is available to graduates of Dyer County High School in Newbern, Tennessee. Recipients are chosen on the basis of academic qualification and financial need.

THE PAYNE-BROWN LEADERSHIP FUND was established in 2006 by S. Bond Payne (B.A. 1992), Lori D. Payne (B.S. 1992), Nancy Payne Ellis and Amy K. Brown (Class of 2009) to provide need-based scholarship support to students enrolled in the College of Arts and Science and Peabody College who have demonstrated leadership in their communities by way of public service, individual achievement, or extracurricular involvement. First preference is given to students who reside in the Oklahoma City Metropolitan Area, with second preference to students from the State of Oklahoma.

THE PETERS FAMILY SCHOLARSHIP was established in 2010 by Cecilia M. Peters and Gary L. Peters to provide need-based financial support to deserving undergraduate students.

THE CHARLES L. AND JEAN RUYLE POWELL SCHOLARSHIP FUND was established in 2006 through a bequest from Jean Ruyle Powell to benefit undergraduate students at Vanderbilt University.

THE ALFRED S. AND EVELYN L. PRICE MEMORIAL SCHOLARSHIP was established in 1985 through a bequest from Evelyn Lipscomb Price. Preference is given to qualified students from Trousdale County, Tennessee.

THE QUINQ SCHOLARSHIP FUND was established in the spring of 2000 to enrich the academic lives of deserving undergraduate students. It benefits one senior in each of the undergraduate schools. Quinqs are Vanderbilt alumni who have graduated fifty or more years ago.

THE REILY FAMILY SCHOLARSHIP was established in 2011 by Caroline T. Reily and William B. Reily IV to provide scholarship support based on financial need to deserving undergraduate students enrolled at Vanderbilt University. Preference in awarding is given to students from the metropolitan New Orleans, Louisiana, area with second preference given to students from Louisiana.

THE RILEY SCHOLARSHIP was established in 1980 by Harris D. Riley (B.A. 1945, M.D. 1948) and members of the Riley family, many of whom attended Vanderbilt.

THE JAMES A. ROBINS MEMORIAL SCHOLARSHIP was established in 1961 in memory of "Dr. Jim," dedicated student, alumnus, trustee, and faculty member of Vanderbilt.

THE BRITT ROGERS JR. MEMORIAL SCHOLARSHIP was established in 1972 by family and friends as a tribute to Brittain Allen Rogers, Jr. (A 1930, LL.B. 1931). This scholarship is awarded to students from Tupelo, Mississippi, or northeastern Mississippi, in that order.

THE STEPHEN CAMPBELL RUDNER SCHOLARSHIP was established in 2006 by Stephen Campbell Rudner (B.A. 1984) of Darien, Connecticut, to provide need-based scholarship support to deserving undergraduates. Preference should be given to students from underrepresented populations who will add to the diversity of the university.

THE FRED SCHOEPFLIN SCHOLARSHIP was established in 2003 from a bequest of Fred Schoepflin of San Francisco, California. The fund will provide scholarship support for a deserving undergraduate from Kentucky for a full four-year degree program, or five years if within the School of Engineering.

THE WILLIAM POWELL SCOBEY SCHOLARSHIP was established in 1977 with a bequest from Vivian D. Scobey in memory of her husband, William Powell Scobey, a 1911 Law School graduate who died in 1961. It provides scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE SCHIFF FAMILY SCHOLARSHIP was endowed in 2005 by Dr. and Mrs. Robert C. Schiff, Jr. (B.S. 1977), and Mr. and Mrs. Robert C. Schiff, Sr.,

through gifts from the Robert and Adele Schiff Foundation to provide need-based scholarship support to deserving undergraduate students.

THE BURWELL ESPY SCHORR SCHOLARSHIP was established in 2012 by Burwell Espy Schorr (B.S. 1992) and Paul C. Schorr IV to provide need-based scholarship support for deserving undergraduate students enrolled at the university.

THE CLYDE H. SHARP SCHOLARSHIP was established in 1983 with a bequest from Mrs. Sharp (Ivy Simpson) in memory of her husband, Clyde (A 1911), and their son, Clyde, Jr. (A 1936). The fund provides financial assistance to students from West Tennessee.

THE ELI GOULD AND SUE JONES SHERMAN MEMORIAL SCHOLARSHIP was established in 1963 with a bequest from Frances Sherman in memory of her parents.

THE SHIMONEK FOUNDATION SCHOLARSHIP was established in 1968 through a private trust from Frank and Joseph Shimonek. Income from the trust is equally divided among Beloit College, Lawrence University, University of the Pacific, and Vanderbilt University.

THE SHORENSTEIN FAMILY SCHOLARSHIP was endowed in 2008 by Douglas W. and Lydia Preisler Shorenstein to provide need-based scholarship support to students enrolled in any of Vanderbilt's undergraduate schools.

THE SPITZ FAMILY SCHOLARSHIP was established in 2004 by William T. Spitz (B.A. 1973) and Sandra P. Spitz (B.A. 1973) to provide scholarship need-based grants to deserving undergraduate students enrolled in any of Vanderbilt's four undergraduate schools.

THE ADA BELL STAPLETON–BLANCHE HENRY WEAVER SCHOLARSHIP, originally the Ada Bell Stapleton Scholarship, was renamed in 1995. The fund honors Miss Stapleton, the first dean of women, and Mrs. Weaver, who served as dean of women, assistant professor of history, director of the Master of Arts in Teaching program, and assistant dean of the Graduate School. Funded by the Vanderbilt Woman's Club, the award is given to a rising junior or senior who is "an outstanding citizen on campus."

THE LERA STEVENS MEMORIAL SCHOLARSHIP was endowed in 1974 through the will of Lera Stevens (B.A. 1933, L 1935) who was employed by Vanderbilt in the offices of the chancellor, vice chancellor, and alumni secretary from her student years until her death in 1971.

ELDON STEVENSON SCHOLARSHIPS were established in 1987 with a bequest from Sarah and Eldon Stevenson. Mr. Stevenson (B.A. 1914) spent his entire business career with the National Life and Accident Insurance Company. He served the university as a member of the Board of Trust for thirty-five years until his death in 1972. These scholarships are available to the sons and daughters of employees of the American General Life and Accident Insurance Company.

THE D. W. STUBBLEFIELD SCHOLARSHIP, established in 1960 by D. W. Stubblefield (B.S. 1911), is available to residents of West Virginia who rank in the top 25 percent of their graduating class and are outstanding in an extracurricular activity. First preference is given to students from Kanawha County.

THE JESSE TAYLOR JR. SCHOLARSHIP was established in 2008 through a bequest from Jesse Taylor Jr. (B.A. 1964) to provide need-based scholarship support to students enrolled in any of Vanderbilt's undergraduate schools.

THE W. F. TAYLOR SCHOLARSHIP was established in 1875 through a gift from Colonel William F. Taylor of Memphis, Tennessee, to provide need-based scholarship assistance to undergraduate students enrolled at Vanderbilt.

THE THOMPSON FAMILY SCHOLARSHIP was established in 2006 to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science and Peabody College. Preference should be given to students who are well-rounded, exhibit strong leadership skills, and excel academically.

THE I. B. TIGRETT–E. E. WILSON SCHOLARSHIP was established in 1970 by Elmer Edwin Wilson (B.A. 1921, LL.B. 1924). Preference is given to residents of Davidson and Madison counties in Tennessee.

THE TROTT FAMILY SCHOLARSHIP was established in 2011 by Tina L. and Byron D. Trott to provide need-based support to deserving undergraduate students enrolled in any of Vanderbilt's four undergraduate schools. Donors provide these scholarships in the spirit of Horatio Alger Jr., a 19th-century American author best known for his inspirational novels about young people who achieve a life of success and prosperity through perseverance, honesty, courage, and strength of character.

THE HILL TURNER MEMORIAL SCHOLARSHIP was established in 1970 by John Turner (B.E. 1932) in memory of his uncle, Hill Turner (B.A. 1917), who was the Vanderbilt alumni secretary for many years.

THE SARI AND THOMAS H. TURNER FAMILY SCHOLARSHIP was established in 2007 by Thomas H. Turner and Sari Turner to honor their daughter, Sydney Reed Turner (B.A. 2010), and to provide need-based scholarship support to deserving undergraduate students enrolled in any of Vanderbilt's four undergraduate schools.

THE UNDERGRADUATE INTERNATIONAL SCHOLARSHIP FUND was established in 2009 to provide scholarship support to international students enrolled in any of Vanderbilt's undergraduate schools.

THE UNDERGRADUATE SCHOLARSHIP FUND FOR UNIVERSITY GENERAL was established in 1993 with gifts from alumni and friends.

GERTRUDE VANDERBILT MINORITY SCHOLARSHIP utilizes the endowment income from $1 million of the estate of Gertrude C. Vanderbilt to provide scholarships for minority undergraduate students. Approval for the allocation of these funds to increase undergraduate minority student enrollment was voted by the executive committee of the Board of Trust in February 1979.

THE VANDERBILT AID SOCIETY SCHOLARSHIP was established in 2009 by the Vanderbilt Aid Society to provide need-based scholarship support to students enrolled in any of Vanderbilt's undergraduate schools.

THE EUGENE H. VAUGHAN FAMILY SCHOLARSHIP FOR ENTREPRENEURIAL EXCELLENCE was established in 2010 by Eugene H. Vaughan (B.A. 1955), a member of Vanderbilt's Board of Trust since 1972, to provide scholarship support based on financial need to deserving undergraduate students. Preference is given to students who graduate from the following Houston-area schools: YES Prep Public Schools, St. John's School, or The Kincaid School. Additionally, the scholarship can be awarded to students from Haywood County, Tennessee.

THE VICE CHANCELLORS SCHOLARSHIP was established in 2003 by Vanderbilt's then Vice Chancellors Lauren J. Brisky, Michael J. Schoenfeld, David Williams II, and Nicholas S. Zeppos to provide scholarship grants to deserving students in Vanderbilt's four undergraduate schools who have proven financial need. In recent years, other Vanderbilt vice chancellors and their spouses have added to the scholarship including Vice Chancellor for Development and Alumni Relations Susie S. Stalcup and her husband Tom (2009), Vice Chancellor for Investments Matthew W. Wright and his wife Verna (2010), Provost and Vice Chancellor for Academic Affairs Richard C. McCarty and his wife Sheila (2010), and Vice Chancellor for Administration Jerry G. Fife (2010).

THE JOHN A. WARREN SCHOLARSHIP was established in 2010 through a gift from John A. Warren (B.E. 1948) to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering and the College of Arts and Science with preference to students from South Carolina.

THE CHARLES S. WATSON MINORITY SCHOLARSHIP was established in 1977 by Charles S. Watson (Ph.D. 1966) to provide financial assistance for minority students.

THE NEWTON H. WHITE SCHOLARSHIP was established in 1958 by Newton H. White, Jr., to honor the memory of his father. Preference is given to students from Giles County, Tennessee.

THE C. W. WHITTHORNE SCHOLARSHIP was established in 1873 by Congressman Whitthorne from Middle Tennessee. Recipients are nominated by the County Executive of Maury County, Tennessee.

THE JOHN MILFORD WILLIAMS SCHOLARSHIP was established by former students of Galloway Woman's College, Searcy, Arkansas, in memory of Professor J. M. Williams, president of Galloway from 1907 to 1933 and an alumnus of Vanderbilt. The recipient must be a direct or collateral descendant of a former student of Galloway Woman's College. He or she may be enrolled in either undergraduate or graduate study in any school of the university. Inquiries should be directed to the Office of Student Financial Aid.

THE ELLEN ROSS WILSON SCHOLARSHIP was established in 1963 by Joseph E. Wilson, who served as Vanderbilt University Auditor. The scholarship is available to students enrolled in the College of Arts and Science or the School of Engineering.

THE L. S. WOOD SCHOLARSHIP was established in 1967 with a bequest from Leighton S. Wood (B.E. 1932).

THE YOUNG MEMORIAL SCHOLARSHIP was established in 1958 by Logan C. B. Young (A 1930, LL.B. 1932) in memory of his two brothers, Joe Clay Young (A 1927, LL.B. 1929) and Andrew Welbey Young (B.A. 1923, LL.B. 1925). Preference is given to students residing in the First Congressional District of Arkansas.

THE LYDIA A. HOWARTH AND NICHOLAS S. ZEPPOS SCHOLARSHIP was established in 2009 by Lydia A. Howarth and Nicholas S. Zeppos to provide scholarship support based on financial need to deserving undergraduate students at Vanderbilt.

THE MARY ANN AND GENE ZINK FAMILY SCHOLARSHIP was established in 2003 by Darrell E. "Gene" Zink, Jr. (B.A. 1968) and Mary Ann Thomison Zink (B.A. 1967) to provide need-based scholarship grants to deserving incoming freshmen in the College of Arts and Science or in the Human and Organizational Development program in Peabody College.

Loan Funds Available to Students in All Schools

The FAFSA is used to determine borrowing eligibility.

THE FEDERAL DIRECT LOAN PROGRAM provides loans up to $5,500 for the first year, $6,500 for the second year, and $7,500 for each subsequent undergraduate year, with liberal terms including deferment of repayment while one is enrolled as at least a half-time student. The aid application materials must be completed for both loan types in order to determine total eligibility.

THE FEDERAL PERKINS LOAN PROGRAM enables the university to provide low-interest loans to students with exceptional need. Beginning nine months after a borrower ceases to be enrolled on at least a half-time basis, the Perkins Loan is repayable within a period of ten years at 5 percent simple interest. Interest does not accrue while a borrower is enrolled in school or during the nine-month grace period.

College of Arts and Science Scholarships

THE ABELL FAMILY SCHOLARSHIP was established in 1992 by Hughes Abell (B.A. 1972), along with his parents and family, as a tribute to the teachers of the Monroe City Schools and Vanderbilt University, especially Walter Dunn (Lee Junior High School), Eleanor "Nibby" Thompson (Neville High School), and V. Jacque Voegeli (Vanderbilt). Preference is given to students from Monroe/Ouachita Parish; northeastern Louisiana; and Louisiana, in that order.

THE TERENCE E. (TED) ADDERLEY JR. SCHOLARSHIP was established in 2007 by Vanderbilt University Board of Trust member Mary Beth Adderley-Wright to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science and to honor and in memory of her son, Ted, a 2001 graduate of Vanderbilt's College of Arts and Science who lost his life on September 11, 2001, at the World Trade Center in New York.

THE SAMUEL E. ALLEN SCHOLARSHIP was established in 2008 by Samuel E. Allen. (B.A. 1958) to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science with first preference to students in the highest category of financial need.

THE DAVID C. AND GRACE MOUAT ALMON SCHOLARSHIP was established in 2010 through a bequest from Grace M. Almon (B.A. 1953), to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science.

THE ALUMNI SUPPORT SCHOLARSHIP was established in 2010 by anonymous donors to provide need-based scholarship support to deserving undergraduate students in the College of Arts and Science. Preference is given to students from the greater Pittsburgh, Pennsylvania, area, Oklahoma and Virginia.

THE ANNUALLY FUNDED SCHOLARSHIP FOR ARTS AND SCIENCE was established in 2006 to provide need-based scholarship support to an incoming freshman enrolled in the College of Arts and Science. The scholarship continues through the four years of the recipient's undergraduate study.

THE ANONYMOUS PARENT SCHOLARSHIP was established in 2011 by anonymous donors to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science.

THE ANONYMOUS SCHOLARSHIP was established in 2012 by an anonymous donor to provide need-based scholarship support to undergraduate students enrolled in the College of Arts and Science.

THE ANONYMOUS FAMILY SCHOLARSHIP was established in 2006 to provide need-based scholarship support to deserving juniors and seniors who are majoring in medicine, health, and society or a related College of Arts and Science program. Includes one summer research stipend.

THE ARNOLD FAMILY SCHOLARSHIP was established in 2005 by John Douglas Arnold (B.A. 1995) to provide two full-tuition need-based scholarships for undergraduate students enrolled in the College of Arts and Science. Awards go to incoming freshmen for their tenure at Vanderbilt.

THE ARNOLD SCHOLARS PROGRAM was established in 2009 by the Laura and John Arnold Foundation, founded and managed by Laura Elena Arnold and John Douglas Arnold (B.A. 1995), to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science. First preference in awarding is given to students who are graduates of high schools managed by KIPP or YES Prep or other specified charter schools and second preference to students of modest economic means.

THE WILLIAM W. BAIN JR. SCHOLARSHIP PROGRAM was established in 2006 by William W. Bain, Jr. (B.A. 1959) to provide scholarships based on financial need to meritorious and deserving undergraduates in the College of Arts and Science.

THE FRANCES L. BALL CHEMISTRY SCHOLARSHIP was established in 2001 with a bequest from former Rutherford County schoolteacher and Oak Ridge National Laboratory chemist Frances L. Ball. The scholarship will be awarded annually to full-time chemistry students who demonstrate "need, aptitude, and dedication." Miss Ball received her undergraduate degree from Middle Tennessee State University and her master's degree in chemistry from Vanderbilt.

THE JOHN S. BEASLEY II, MCCARTY-STEIN SCHOLARSHIP IN ARTS AND SCIENCE was established in 2008 by John F. Stein (B.A. 1973, MBM 1975) and Michiel C. McCarty (B.A. 1973) to honor Vice Chancellor Emeritus John S. Beasley II (B.A. 1952, J.D. 1954) and to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science.

THE SARAH OVERTON COLTON BARRY SCHOLARSHIP was established in 1939 by Robert P. Barry, Jr. (B.E. 1933, M.S. 1934), in memory of his wife, Sarah.

THE J. THOMAS BENTLEY SCHOLARSHIP was established in 2002 by J. Thomas Bentley (B.A. 1971) to provide scholarship support based on financial need to undergraduate students in the College of Arts and Science.

THE BERNICK FAMILY SCHOLARSHIP was established in 2005 by Carol and Howard Bernick to provide an annual full-tuition, need-based award to an incoming freshman in the College of Arts and Science that is renewable for four years. Preference should be given to a student from a rural area.

THE EULEEN BROWN BERRY SCHOLARSHIP was endowed in 1990 through the bequest of Euleen Berry (B.A. 1923), a former teacher in Tennessee and Arkansas.

THE MATTHEW STEVEN BLANKENSHIP/CAROLINE KATHERINE MUNDT/PHILIP COOPER MARKS SCHOLARSHIP was established in 2005 by the Blankenship Charitable Annuity Trust of Oklahoma City, Oklahoma, to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science.

THE BLUM FAMILY SCHOLARSHIP was established in 2007 by David Blum (B.A. 1977) to provide need-based scholarships to deserving undergraduate students enrolled in the College of Arts and Science. Mr. Blum was active in many campus organizations as an undergraduate and, as an alumnus, served as Reunion Class Chairman for the Class of 1977 and president of the Chicago Vanderbilt Club.

THE BOGLE FAMILY SCHOLARSHIP was established in 2011 by John Clifton Bogle Jr. (B.S. 1982, MBA 1983), to provide need-based scholarship support for deserving undergraduate students in the College of Arts and Science with first preference to graduates of the Roxbury Latin School in Roxbury, Massachusetts.

THE BOURLAY-HAMBRICK SCHOLARSHIP was endowed in 1999 by retired professor emeritus Charles H. Hambrick (B.A. 1952), Professor of Religious Studies, College of Arts and Science, and his wife, Joy Bourlay Hambrick, to aid students of Asian American heritage. They have lived and taught in Japan.

THE BOURNE FAMILY SCHOLARSHIP was established in 2003 by Robert A. and Jeanette C. Bourne to provide scholarship grants to undergraduates based on financial need. Preference is given to students who have participated in mission work or held positions of responsibility in church youth groups or groups such as Fellowship of Christian Athletes, Campus Crusade for Christ, Student Venture, Young Life, or RUF (Reformed University Ministries).

THE CAWTHON A. BOWEN JR. SCHOLARSHIP FUND was established in 2003 through a gift from the estate of the late Cawthon A. Bowen, Jr.

THE LILLIAN ROBERTSON BRADFORD SCHOLARSHIP was established in 2006 by James C. Bradford, Jr., in honor of his wife, Lillian "Tooty" Bradford (B.A. 1963) to provide need-based scholarships to deserving undergraduates in the College of Arts and Science. Preference should be given to female students from Robertson County or Middle Tennessee, with secondary preference given to female students from Tennessee.

THE J. M. BRECKENRIDGE MEMORIAL CHEMISTRY SCHOLARSHIP was established in 1965 by Mrs. Breckenridge in memory of her husband. He was a member of the Vanderbilt faculty for thirty years and was at one time chair of the chemistry department. Recipients of Breckenridge scholarships will be chosen from juniors and seniors who plan careers in chemistry.

THE MARK AND ELIZABETH BARROW BRUEGGEMAN SCHOLARSHIP was established in 2011 by Elizabeth B. Brueggeman (B.S. 1981) and Mark A. Brueggeman to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science with preference in awarding to students majoring in mathematics. The scholarship was established in honor of the 30th reunion of the Class of 1982.

THE MARGARET AND JERRY CALDWELL SCHOLARSHIP was established in 2007 by Margaret Buford Caldwell (A 1960) and W. H. G. "Jerry" Caldwell (B.A. 1957) to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science, with preference to U.S. citizens.

THE WILLIAM H. CAMMACK SCHOLARSHIP was established in 2002 by William H. Cammack (B.A. 1952). Preference will be given to male students from the Southeast. Demonstrated leadership, service to community and school, and involvement in other extracurricular activities will be considered in the awarding of the scholarship.

THE WILLIAM P. CAMPBELL SCHOLARSHIP was established in 1949 through a bequest from William P. Campbell (A 1892) to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science. Mr. Campbell was principal of Bret Harte High School in Calaveras County, California.

THE MATT AND VIOLA CARLOSS SCHOLARSHIP was established in 1978 by John Raymond "Matt" Carloss, who was originally from Lebanon, Tennessee, and his wife, Viola, born in Brownsville, Tennessee. Both were graduates in the class of 1936. They died in 1993. Preference is given to students from Wilson and Haywood counties in Tennessee.

THE CARPENTER FAMILY SCHOLARSHIP was established in 2008 by Ben and Leigh Carpenter to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science.

THE CHAFFIN FAMILY SCHOLARSHIP was established in 2006 by Mary D. Hartong (B.A. 1981) to honor her mother and the many family members with Vanderbilt ties. This annually funded scholarship benefits an undergraduate student in the College of Arts and Science based on financial need.

THE W. MILLARD CHOATE SCHOLARSHIP was endowed in 1999 by W. Millard Choate (B.A. 1974) to provide need-based scholarships to deserving undergraduates in the College of Arts and Science.

THE POPPY AND ROBERT CLEMENTS FAMILY SCHOLARSHIP was established in 2011 by Ann "Poppy" Hicks Clements (B.A. 1986) and Robert M. Clements in honor of Mrs. Clements's 25th reunion of the Class of 1986 and in appreciation of the education their daughters, Ann and Curry, are receiving at Vanderbilt. It provides scholarship support based on financial need for deserving students enrolled in the College of Arts and Science with preference to students with significant financial need.

THE MARY AND ELMER COHEN SCHOLARSHIP was endowed in 1998 with a bequest from Elmer Cohen (B.A. 1931).

THE CECIL D. CONLEE SCHOLARSHIP FUND was established in 2002 by Cecil D. Conlee (B.A. 1958) of Atlanta, Georgia, to provide need-based assistance to deserving students. Mr. Conlee is a member of the Vanderbilt University Board of Trust.

THE MICHELE AND STACIA CONLON SCHOLARSHIP was endowed in 1994 by Mr. and Mrs. Michael W. Conlon to honor their daughters, Michele (B.A. 1994) and Stacia (B.A. 1997).

THE EMILY EDDINS CONN AND LANCE CONN SCHOLARSHIP was established in 2012 by Emily Eddins Conn (B.A. 1992) and William Lance Conn to provide need-based scholarship support for deserving undergraduate students in the College of Arts and Science. Preference in awarding is given to students from Alabama and Mississippi.

THE WILLIAM PHILLIPS CONNELL SCHOLARSHIP was established in 1941 with the proceeds of a trust from Eleanor Connell Witter, daughter of Phil Connell, B.S. 1897, Board of Trust 1914–1932. Both were from Baton Rouge, Louisiana.

THE KAREN AND EVERETT R. COOK II FAMILY SCHOLARSHIP was established in 2005 by Karen and Everett R. Cook to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science.

THE COUSINS SCHOLARSHIP was established in 1982 by Mr. and Mrs. R. B. Cousins and their sons, Robert (B.A. 1967) and Ralph (B.A. 1970).

THE CRAIG FAMILY SCHOLARSHIP was established in 2011 by Rebecca T. and James P. Craig in appreciation of the excellent educational experience provided to their daughter, Caroline (Class of 2013). It provides need-based financial support for deserving students enrolled in the College of Arts and Science.

THE DECHERD FAMILY SCHOLARSHIP was established in 2005 by Robert W. Decherd and Maureen H. Decherd to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science.

THE MARTIN AND MILDRED DEITSCH SCHOLARSHIP was established in 1987 by Ira J. Deitsch (B.A. 1974) to honor his parents and to encourage the study of mathematics.

THE SANDRA AND ROGER DEROMEDI INTERNATIONAL SERVICE LEARNING SCHOLARSHIP was established in 2009 by Sandra and Roger K. Deromedi (B.A. 1975) to provide undergraduate students enrolled in the College of Arts and Science the opportunity to participate in the VISAGE (Vanderbilt Initiative for Scholarship and Global Engagement) program or similar programs that provide both an academic and service component abroad. The scholarship is awarded based on financial need and a competitive selection process.

THE FRANCIS J. AND MARIE K. DEVER MEMORIAL SCHOLARSHIP was established in 2008 by Carolyn M. Dever, dean of the College of Arts and Science, and Paul D. Young, associate professor of English, to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science. The scholarship is named in honor of Dean Dever's grandparents as a tribute to the value they placed on education.

THE DUNBAR FAMILY SCHOLARSHIP was established in 2005 by Wallace H. Dunbar to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science.

THE IVAR LOU AND EDGAR DUNCAN SCHOLARSHIP was established in 1987 by family, former students, and other friends to honor Mrs. Duncan (B.A. 1924, Ph.D. 1940), a teacher, and her late husband, who served as professor of Latin and English, chairman of the English department, and director of graduate studies in English. Mrs. Duncan died in 1997.

THE ELIZABETH SCHICK DUNN SCHOLARSHIP was established in 2005 by Elizabeth Schick Dunn to benefit worthy undergraduate students in the College of Arts and Science. In recognition of the role played by religion in all aspects of human life and experience, Mrs. Dunn has requested that preference be given to students majoring in religious studies.

THE EARLY-WHITE INTERNATIONAL SCHOLARSHIP was established in 2005 by Patricia Early White (B.A. 1976) and George H. White to provide need-based financial support to undergraduate international students from the United Kingdom or European Union member countries enrolled in the College of Arts and Science. The scholarship was established in memory of Patricia's father, Allen Early Jr. (B.A. 1940), and to honor George's mother, Eleanor Hoover White (B.S.N. 1948).

THE MARTHA LOUISE SCOTT EASLEY STUDY ABROAD TRAVEL SCHOLARSHIP was established in 2010 by William E. Easley (B.A. 1976) in memory of his mother, Martha Louise Scott Easley (M.A. 1949), to provide travel support to deserving undergraduate students in the College of Arts and Science who are participating in study abroad programs and who have demonstrated financial need.

THE WILLIAM H. AND SUSAN C. EASON SCHOLARSHIP was endowed in 1989 by William H. Eason (B.A. 1939) and his wife, Susan Cheek Eason (B.A. 1941).

THE ELLISTON SCHOLARSHIP was derived from a bequest in 1910 from Mrs. William R. Elliston (Elizabeth Boddie). She was closely associated with Vanderbilt in its early days and gave the land on which much of the original campus is located.

THE EPSTEIN-MCCLAIN FAMILY SCHOLARSHIP was established in 1997 with a gift from John C. McClain, a member of the Class of 1946 and his wife, Virginia. It was given in gratitude for the educations received by their daughter, Laurie, a member of the Class of 1975, and their son-in-law, Marc Epstein, a 1981 graduate married to their daughter, Bonnie. The scholarship benefits students from the state of Texas.

THE JANE EVANS MEMORIAL SCHOLARSHIP was endowed in 2004 through gifts by Ruth Montgomery Cecil (B.A. 1965) to honor the memory of Ms. Evans and her many contributions to Vanderbilt. Additional contributions were made by several classmates and by KB Home in honor of Ms. Evans' service as a board member.

THE FARESE FAMILY SCHOLARSHIP was established in 2010 by Nancy R. Farese (B.A. 1983) and Robert V. Farese, Jr. (M.D. 1985) to provide support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science.

THE FAYNE FAMILY SCHOLARSHIP was established in 2006 by Steven Neal Fayne (B.A. 1973) to provide scholarships based on financial need to undergraduate students enrolled in the College of Arts and Science.

THE FETTIG FAMILY SCHOLARSHIP was established in 2008 by Jeff M. and Marcia Fettig to provide scholarship support based on financial need to deserving undergraduates enrolled in the College of Arts and Science. The scholarship was given to honor their children, Anne Elise Fettig (B.A. 2006) and Jeff "Jay" Darrow Fettig (B.A. 2008), in appreciation of their educational experiences in the College of Arts and Science. Preference in awarding is given to students from western Michigan, followed by Michigan at-large, then to students from Indiana.

THE ABRAHAM AND RUTH FRIEDMAN SCHOLARSHIP was established in 2011 by Ellen Sue Levy (Ph.D. 2004) and Gregg M. Horowitz to provide need-based scholarship support for deserving undergraduate students in the College of Arts and Science with preference in awarding given to students with substantial financial need.

THE MAUDE BRANNEN FUTCH SCHOLARSHIP was established in 2012 by Clarke Brannen Futch (B.A. 1989) and Curt Ingram Futch (B.A. 1996) to provide scholarship support based on financial need to deserving undergraduates in the College of Arts and Science. The fund was created in honor of the donors' grandmother, Mrs. Maude Brannen Futch. Preference in awarding should be given to graduates of Brentwood Academy in Brentwood, Tennessee, or to students from Savannah, Georgia, or the southern Georgia region. Should there be no students meeting those preferences the scholarship may be given to students from Brentwood, Tennessee, or the state of Georgia.

THE GARRIDO FAMILY SCHOLARSHIP was established in 2013 by Jose Antonio Garrido III (B.S. 2003) to provide scholarship support based on financial need to undergraduate students in the College of Arts and Science. Preference in awarding will be given to graduates of Belen Jesuit Preparatory School in Miami, Florida, with second preference to students from the greater Miami area and then South Florida.

THE GIBOR FOUNDATION–ARLENE H. GRUSHKIN MEMORIAL SCHOLARSHIP was established in 2009 by the Herbert and Sarah M. Gibor Charitable Foundation in memory of Arlene H. Grushkin to provide need-based scholarship support to undergraduate students enrolled in the College of Arts and Science.

THE GLASEBROOK FAMILY SCHOLARSHIP was established in 2003 by Mr. and Mrs. Richard J. Glasebrook II to provide financial assistance to deserving students in the College of Arts and Science with proven financial need.

THE GO FAMILY SCHOLARSHIP was established by Mae K. Go (A&S 1972) and Qung W. Go (A&S 1973) in honor of their parents, Mr. Jip Y. Go and Mrs. Sit Moore Hing Go. Mr. and Mrs. Go were very supportive of higher education and ensured that Mae, Qung, and their sisters and brothers all obtained college degrees. Preference in awarding will be given to students of Asian American heritage.

THE SOL GOLDMAN FAMILY SCHOLARSHIP was established in 2010 by the Sol Goldman Charitable Trust to provide need-based scholarship support to deserving undergraduates in the College of Arts and Science.

THE ALAN S. GOTTLIEB SCHOLARSHIP was established in 2012 through the estate of Alan S. Gottlieb (B.A. 1963) to provide need-based scholarship support for deserving undergraduate students in the College of Arts and Science.

THE DAWN GROSS MEMORIAL SCHOLARSHIP was established in 1992 by Jenard M. Gross (B.A. 1950) and his wife, Gail, in memory of their

daughter who died in 1990 while pursuing a career in acting. Preference for the scholarship is given to students majoring in theatre.

THE JENARD M. GROSS SCHOLARSHIP was established in 1969 by Jenard Gross (B.A. 1950).

THE GIBOR FOUNDATION–ARLENE H. GRUSHKIN MEMORIAL SCHOLARSHIP was established in 2009 by the Herbert and Sarah M. Gibor Charitable Foundation to provide need-based scholarship support to undergraduate students enrolled in the College of Arts and Science.

THE ALLISON HALL GROVE SCHOLARSHIP was established in 2005 by Brian Allen Grove (B.A. 1982, M.B.A. 1983) to honor the memory of his wife (B.A. 1984). The scholarship provides assistance to deserving Arts and Science undergraduates. First preference is given to female students from Texas in the College of Arts and Science. Secondary preference is given to female students in the College of Arts and Science.

THE BRIAN AND CHARLOTTE GROVE SCHOLARSHIP was established in 2010 by Charlotte Sutherland Grove and Brian Allen Grove (B.A. 1982, MBA 1983) of Houston, Texas, to provide need-based financial support to deserving undergraduate students enrolled in the College of Arts and Science. Preference is given to students from Texas.

THE GRUSHKIN-SMITH-GIBOR FOUNDATION SCHOLARSHIP was established in 2008 by the Herbert and Sarah M. Gibor Charitable Foundation to provide need-based scholarship support to deserving undergraduates enrolled in the College of Arts and Science.

THE DR. THOMAS L. HALE, SR. SCHOLARSHIP was established in 1998 through a bequest from Robert Baker Hale, Sr. (B.A. 1934) to honor the memory of his father and to provide scholarship support based on financial need to undergraduate students in the College of Arts and Science.

THE MARJORIE V. HAMRICK SCHOLARSHIP was endowed in 1992 with a bequest from Marjorie Vandill Hamrick (A 1944), who died in 1988.

THE CLEBURNE LEE AND ELIZABETH PURSLEY HAYES SCHOLARSHIP was established in 1982 by Annie Lee Hayes Cooney (B.A. 1920) and her sister, Edith Brevard Hayes Kitchens (B.A. 1922), in memory of their parents. Mrs. Cooney died in 1985 and Mrs. Kitchens died in 1991.

THE EDITH HAGGARD MORROW HICKERSON SCHOLARSHIP was established in 2007 by Edith Morrow Hickerson Johnson (B.A. 1975, M.A.T. 1976) to honor her mother, Edith Haggard Morrow Hickerson (B.S. 1941), and to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science. First preference is given to residents of Tennessee from outside the metropolitan areas of Nashville, Memphis, Knoxville, and Chattanooga and who have an interest in studying English/literature. Secondary preference is given to students from the Southeastern states with an interest in studying English/literature.

THE CAROLINE AND LISA HEYMAN SCHOLARSHIP was established in 2012 by Vicki Simons Heyman (B.A. 1979, MBA 1980) and Bruce Alan Heyman (B.A. 1979, MBA 1980) to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science.

THE HINES FAMILY SCHOLARSHIP was established in 2005 by Jeff and Wendy Hines to provide annual scholarship assistance to students who meet the university's requirements for need-based aid with preference given to students enrolled in the College of Arts and Science.

THE JENNIFER AND ANDREW HOINE SCHOLARSHIP was established in 2010 by Jennifer Schwalbe Hoine and Andrew Hoine (B.A. 1996), to provide need-based financial support to deserving undergraduate students in the College of Arts and Science. Preference is given to students from one of the five boroughs of New York City.

THE ELIZABETH BEESLEY HUBBARD SCHOLARSHIP was established in 2005 by Allan B. Hubbard (B.A. 1969) of Indianapolis, Indiana, to honor his mother, Elizabeth Beesley Hubbard (B.A. 1935), and to provide need-based scholarships to deserving undergraduates in the College of Arts and Science. Preference in awarding should be given to a student whose exceptional leadership and extracurricular involvement overshadow his/her academic achievement.

THE DIANA M. HUDSON SCHOLARSHIP was established in 2008 by Diana M. Hudson (B.A. 1973) and Lee L. Kaplan to provide scholarship support based on financial need to deserving undergraduates enrolled in the College of Arts and Science.

THE COLES P. HULL AND CAROLINE N. HULL SCHOLARSHIP was established in 2006 by Karen Newton Hull and James M. Hull to honor their daughters, Coles Phinizy Hull (B.A. 2007) and Caroline Newton Hull (B.A. 2009), and to provide scholarship assistance to deserving undergraduates enrolled in the College of Arts and Science.

THE ETTORE F. INFANTE SCHOLARSHIP was endowed in 2000 by an anonymous donor in honor of College of Arts and Science Dean Ettore F. "Jim" Infante. Dean Infante came to Vanderbilt in August 1997 and retired in June 2000. The scholarship will be awarded to an undergraduate student in the College of Arts and Science on the basis of financial need, academic accomplishment, and potential.

THE E. DOUGLAS JOHNSON JR. FAMILY SCHOLARSHIP was established in 1993 by Mr. and Mrs. E. Douglas Johnson, Jr., to honor their three daughters: Courtney (B.S. 1991), Leslie (B.S. 1993), and Kelley (B.A. 1995). First preference is given to students from New Orleans with second preference to students from Louisiana.

THE MORTON C. JOHNSON SCHOLARSHIP was established in 1987 with a bequest from Mrs. H. Dwight Johnson (Morton Covington, B.A. 1921).

THE RHODA KAUFMAN MEMORIAL SCHOLARSHIP was established by the will of Berenice Kaufman in memory of her sister, a Phi Beta Kappa graduate in the Vanderbilt class of 1908. Preference is given to students from the state of Georgia who are majoring in one of the social sciences or preparing for a career in international relations.

THE IRMA LOUISE AND CLAUDE J. KEISLING SCHOLARSHIP was established in 2007 by Richard F. Wallman (B.A. 1972) and his wife, Amy, in memory of Mr. Wallman's aunt and uncle, Irma Louise "Wees" (B.A. 1941) and Claude Keisling. The scholarship provides need-based assistance to deserving undergraduate students in the College of Arts and Science with preference to female freshman students from the Nashville area. Secondary preference should be given to female freshman students from Tennessee; as a third preference, freshman female students from the state of Florida.

THE JAMES EDMUND KEMP SCHOLARSHIP was established in 2009 by Judy Kemp Amonett (B.A. 1969) and Carolyn Kemp Wittenbraker (B.A. 1971) in memory of their father to provide need-based scholarship support to undergraduate students in the College of Arts and Science.

THE KIBLER FAMILY SCHOLARSHIP was established in 2007 by Frank M. Kibler Jr. (B.E. 1969), Anne C. Kibler (B.A. 1970), Caroline M. Kibler (B.S. 1997), and Laura K. Crim to provide need-based scholarship support to deserving undergraduate students who are in their junior or senior year in the College of Arts and Science. Preference is given to females who are U.S. citizens whose declared major course of study is in mathematics or the physical and biological sciences.

THE KIRSCH FAMILY SCHOLARSHIP was established in 2006 by Mary Elizabeth Kirsch (B.A. 1984) and Adam White Kirsch to provide need-based scholarships to deserving undergraduate students enrolled in the College of Arts and Science, with preference to students who add to the diversity of the university.

THE ARIEL MORGAN KRAVITZ AND EVAN JARED KRAVITZ SCHOLARSHIP was established in 2010 by Rhonda Greenstein Kravitz and Spencer A. Kravitz of Manhasset Hills, New York, to provide need-based financial support to deserving undergraduate students enrolled in the College of Arts and Science with preference to students with a parent whose career is in civil service. The scholarship was given to honor their children, Evan (B.A. 2009) and Ariel (B.A. 2010), and in special appreciation of the education they received at Vanderbilt in pursuit of their careers in medicine and veterinary medicine.

THE VANCE AND JULIE LANIER MINORITY SCHOLARSHIP was endowed by Vance W. Lanier (B.A. 1961), a son of Sartain Lanier (B.A. 1931) who was a life member of the Vanderbilt Board of Trust. Mr. Lanier established this scholarship in 1980 to aid disadvantaged minority students. In 1995, the scholarship was renamed to include his wife. Vance Lanier died in December 2003.

THE JEANNE AND ALFRED W. LASHER JR. SCHOLARSHIP was established in 1992 by Mr. Lasher (A 1942) to honor his fiftieth reunion year. Preference is given, but not restricted, to residents of (1) West Palm Beach, (2) Palm Beach County, and (3) Florida.

THE DIANE v.S. LEVY AND ROBERT M. LEVY SCHOLARSHIP was established in 1997 by Robert M. Levy (B.A. 1972) of Chicago. The scholarship will be awarded to students who are U.S. citizens who have proven financial need. Preference should be given to students from Chicago and Atlanta who will add to the diversity of the university.

THE BRYN SARA LINKOW FOUNDATION SCHOLARSHIP was established in 1994 by Dr. and Mrs. Mark A. Linkow in memory of their daughter, Bryn, who died during her junior year at Vanderbilt. The scholarship is available to students with a cumulative grade point average of 3.0 or above.

THE LMC SCHOLARSHIP was established in 2012 by an anonymous donor to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science. Preference in awarding should be given to students who are graduates of Russellville High School in Russellville, Kentucky. Second preference in awarding should be given to students from Logan County, Kentucky, third preference to students from south central Kentucky, and fourth preference to students from Kentucky.

THE JOHN R. LOOMIS SCHOLARSHIP was established in 1996 by John R. Loomis (B.A. 1951) who served as general chair for Reunion '96.

THE LORTZ FAMILY SCHOLARSHIP was established in 2001 by William C. Lortz (A 1960) to provide need-based scholarships to deserving undergraduates in the College of Arts and Science.

THE LUMMIS FAMILY SCHOLARSHIP was established in 2002 by Claudia Lummis (B.A. 1976) and Frederick R. Lummis II (B.A. 1976) to provide need-based scholarship support to undergraduates enrolled in the College of Arts and Science.

THE LUMMIS FAMILY SCHOLARSHIP was established in 2010 by Claudia Lummis (B.A. 1976) and Frederick R. Lummis II (B.A. 1976) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science.

THE C. F. "DOC" MAGINNIS SCHOLARSHIP was established in 2006 by Sharon Maginnis Munger (B.A. 1968) in honor of her father to benefit worthy undergraduate students in the College of Arts and Science.

THE MALLOY FAMILY SCHOLARSHIP was established in 2005 by Candice and Patrick E. Malloy III to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science. Preference in awarding should be given to children of a parent(s) serving in the military, if such information is readily and reasonably known to the university.

THE PAUL E. MANNERS–LILLIAN BAYER SCHOLARSHIP was endowed in 1996 by Paul E. Manners (B.A. 1942) as a tribute to his former high school teacher, Miss Lillian Bayer of Cumberland City, Tennessee, and to provide need-based scholarships to deserving undergraduates enrolled in the College of Arts and Science. Preference is given to students from Stewart County, Tennessee, with second preference to students from adjoining counties.

THE MARTINO SCHOLARSHIP was established in 2011 by Margharet F. Nash and Frank Vincent Nash (B.A. 1973) to provide scholarship support to deserving undergraduate students in the College of Arts and Science. The scholarship was created in honor of Mr. Nash's maternal grandparents, Vincent and Jenny Martino, and his mother, Rose Nash. Mr. and Mrs. Martino were immigrants to the United States. They, and their daughter Rose, sacrificed so that Mr. Nash and his siblings would have the financial resources available to attend college. Preference in awarding is given to students who have been members of the U.S. Armed Forces, students with parent(s) currently serving in the U.S. Armed Forces or who had a parent killed in action while serving in the U.S. Armed Forces, students who are the legal spouse of someone currently serving in the U.S. Armed Forces or the widow or widower of someone who was killed in action while serving in the U.S. Armed Forces.

THE MATELICH FAMILY SCHOLARSHIP was established in 2009 by Susan and George Matelich to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science with reasonable preference to candidates who are the first generation of their family to attend a four-year college. Recipients are encouraged to consider the scholarship an opportunity to "pay it forward" by remembering what was done for them and making a financial contribution of any size to Vanderbilt University to help others pursue an education should they be fortunate enough to be in a position to do so.

THE CAROLINE ROBINSON MCGUIRE SCHOLARSHIP was established in 2007 by the William B. McGuire Jr. Family Foundation to honor Caroline Robinson McGuire (B.A. 2008), and to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science with first preference to students from Charlotte, North Carolina, followed by students from North Carolina and South Carolina, respectively.

THE BRANK AND ELIZABETH CARLEN MCLEAN SCHOLARSHIP was established in 1984 by Brank McLean and his wife Elizabeth (B.A. 1942).

THE W. PATRICK MCMULLAN SCHOLARSHIP was established in 2005 by W. Patrick McMullan III (B.A. 1974) to provide assistance to students enrolled in the College of Arts and Science.

THE MARY L. MEFFORD MEMORIAL SCHOLARSHIP was established in 1995 by William R. "Pete" Mefford (B.A. 1963) in memory of his mother who served Vanderbilt with dedication for many years as a telephone operator. She died shortly after retiring.

THE FONTAINE B. MOORE JR. MEMORIAL SCHOLARSHIP was established in 2010 through a bequest from Madeline Luce Moore in honor of her husband, Dr. Fontaine B. Moore, Jr. (B.A. 1941) to provide scholarship support to deserving undergraduate students in the College of Arts and Science, with preference to students with an interest in pre-med studies who are in the top 25th percentile of their class.

THE MYER FAMILY SCHOLARSHIP was established in 2008 by Charles M. Myer III (B.A. 1975) and Virginia A. Myer (B.S.N. 1975) of Wyoming, Ohio, to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science. Preference in awarding is given to students from the Cincinnati, Ohio, tri-state area including southwestern Ohio, northern Kentucky and southeastern Indiana, with second preference being given to students from Ohio.

THE OSCAR GUSTAF NELSON SCHOLARSHIP was established in 1977 by the family of Dr. Nelson (B.A. 1911, M 1915). The scholarship provides assistance for students to pursue a premedical course of study. Although this is not a loan, the recipients are asked to accept a moral obligation to repay the scholarship when they are able.

THE CLEO AND FRED NIEDERHAUSER SCHOLARSHIP was endowed in 2004 by Amy and Richard Wallman (B.E. 1972) to honor the memory of Richard Wallman's maternal grandparents. Mr. Niederhauser was a dairy farmer in Brentwood, Tennessee, and worked very hard to send his four daughters to Vanderbilt. Preference is given to freshman female students from the Nashville area. Secondary preference should be given to freshman female students from Tennessee.

THE D. CRAIG NORDLUND AND SALLY BAUM NORDLUND SCHOLARSHIP in Arts and Science was established in 2009 by D. Craig Nordlund (J.D. 1974) and Sally Baum Nordlund (B.S.N. 1974) to provide need-based scholarship assistance to deserving students enrolled in the College of Arts and Science. Preference is given to students interested in pursuing a focus in areas such as the humanities, literature, foreign language, history, and philosophy.

THE FRANCES DOUGLAS O'PRY SCHOLARSHIP was established in 2010 through a bequest from Frances Douglas O'Pry (B.A. 1958) to provide scholarship support based on financial need to deserving students in the College of Arts and Science. Preference in awarding is given to female undergraduates majoring in areas related to philosophy or religion.

THE ORCHARD SCHOLARSHIP was established in 2010 by the Orchard Foundation in appreciation of the education received at Vanderbilt by Hans Marcus Sherman (B.A. 2003) and Sarah Moreland Sherman (B.A. 2003) and to provide need-based financial support to deserving undergraduate students in the College of Arts and Science.

THE ELIZABETH M. OVERBY MEMORIAL SCHOLARSHIP was established in 2009 through a bequest from Alison Brooke Overby to honor the memory of her mother, Elizabeth M. Overby (B.A. 1947), and to provide need-based financial support for deserving students in the College of Arts and Science. Alison Overby was a professor of law at Tulane University.

THE LACY R. OVERBY MEMORIAL SCHOLARSHIP was established in 1994 as a tribute to Lacy Overby (B.A. 1942, M.S. 1948, Ph.D. 1951) by his wife, Elizabeth Hulette Overby (B.A. 1947), family, colleagues, and friends. Dr. Overby served on the Vanderbilt chemistry faculty from 1947 to 1948. He died in 1994 after a long and distinguished career in the pharmaceutical and biotechnology industries. Mrs. Overby died in 1998.

THE STEPHEN L. OVERBY MEMORIAL SCHOLARSHIP was established in 1959 by Dr. and Mrs. Lacy R. Overby in memory of their son who died at the age of three.

THE PAGE FAMILY SCHOLARSHIP was established in 2010 by Virginia "Penny" W. Page (B.A. 1981) and Gene "Ruffner" Page, Jr. (B.A. 1981) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science with preference for students majoring in philosophy with a secondary preference for students majoring in psychology or history of art.

THE CHARLES PARMER AND MARGARET MANSON PARMER SCHOLARSHIP was established in 1989 with a bequest from Margaret Manson Parmer.

THE CAROLINE PENROD-MARTIN MEMORIAL SCHOLARSHIP was established in 1989 by family and friends in memory of Caroline Penrod-Martin (B.A. 1969).

THE CRAIG S. PHILLIPS SCHOLARSHIP FUND was established in 2001 by Craig S. Phillips (B.A. 1976). First preference will be given to students from New York City. Secondary preference will be given to students from New York, New Jersey, and Connecticut.

THE SHOLAR FOUNDATION SCHOLARSHIP was established in 2012 by anonymous donors to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science.

THE SUE SUGG PIANT MEMORIAL SCHOLARSHIP was established in 1972 by Dr. W. D. Sugg (B.A. 1919, M.D. 1923) as a memorial to his sister, who was a Vanderbilt graduate. The scholarship, awarded to students majoring in classical studies, is based on financial need and/or academic merit.

THE EDGAR M. AND ESTHER M. PILKINTON SCHOLARSHIP was endowed in 1990 through the bequest of Edgar Merrill Pilkinton (B.A. 1925, M.S. 1926).

THE JAMES A. AND MATILDA D. PILKINTON SCHOLARSHIP was endowed in 1991 through the bequest of Edgar Merrill Pilkinton (B.A. 1925, M.S. 1926) to honor his parents.

THE PREISSIG FAMILY SCHOLARSHIP was established in 2010 by Randall S. Preissig, M.D. (B.A. 1968) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science.

THE W. CLINTON RASBERRY JR. SCHOLARSHIP was established in 2008 by W. Clinton Rasberry, Jr. (B.A. 1963) to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science. First preference is given to students who are U.S. citizens and are from Northwest Louisiana (parishes of Caddo, Bossier, DeSoto, Webster, Clairborne, Lincoln, and Bienville) with second preference to students who are U.S. citizens and are from the remainder of Louisiana.

THE REAM FOUNDATION SCHOLARSHIP was established in 2008 by The REAM Foundation of Buffalo Grove, Illinois, to provide need-based scholarship support to a student in the College of Arts and Science. First preference is given to a Jewish studies major, with second preference to a student from the Chicago area.

THE JOHN AND MARY POITEVENT REDWINE SCHOLARSHIP was established in 2001 by Mr. and Mrs. Walter H. Clark of Mandeville, Louisiana, through the trust of Mrs. Clark's late aunt, Mary Poitevent Redwine. It is given in honor of Pauline Poitevent Clark (B.A. 1999), Mims Maynard Zabriskie (B.A. 1976), and George F. Maynard (B.A. 1980, J.D./M.B.A. 1984).

THE REVES FAMILY SCHOLARSHIP was endowed in 2000 by Dr. Joseph Gerald Reves, Jr. (B.A. 1965) and his wife, Margaret. The scholarship benefits students from North Carolina, South Carolina, Alabama, and Mississippi.

THE RIDDICK FAMILY SCHOLARSHIP was established in 2008 by Frank Adams Riddick III (B.A. 1978) to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science.

THE JOE L. AND HILPPA A. K. ROBY SCHOLARSHIPS were established through a gift from Joe L. Roby (B.A. 1961), member of the Vanderbilt Board of Trust, and Hilppa A. K. Roby to provide financial support to students in the College of Arts and Science. The Joe L. Roby Scholarship will be awarded to students from the greater New York City area, including southern Connecticut and northern New Jersey. The Hilppa A. K. Roby Scholarship will be awarded to students from Finland, Mrs. Roby's birthplace.

THE MILDRED FITE WOODWARD ROGGE SCHOLARSHIP was established in 2006 through a bequest from Mildred Fite Woodward Rogge (B.A. 1934).

THE MARGARET MCKNIGHT ROPP SCHOLARSHIP was established in 2007 by John Willson Ropp (B.A. 1984) to honor the memory of his wife, Margaret McKnight Ropp (B.A 1984), and to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science.

THE I. A. AND LUCILE ROSENBAUM SCHOLARSHIP was established in 1992 by Ike A. Rosenbaum, Jr. (B.A. 1942), and his wife, Lucile Reisman Rosenbaum (B.A. 1935). The scholarship benefits students from the city of Meridian and the county of Lauderdale in Mississippi.

THE ROSS FAMILY SCHOLARSHIP was established in 2003 by John J. Ross, Jr. (B.A. 1968) and Harriet L. Ross (B.A. 1968) to provide need-based scholarships to deserving undergraduates in the College of Arts and Science. Preference will be given to earth and environmental science majors with a secondary preference to students majoring in a foreign language.

THE JEFF AND MARIEKE ROTHSCHILD SCHOLARSHIP was established in 2012 by Marieke H. Rothschild and Jeffrey Rothschild (B.A. 1977, M.S. 1979) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science.

THE SAMUELS SCHOLARSHIP was endowed in 2002 by John M. Samuels (B.A. 1966) to provide need-based scholarships to deserving undergraduates.

THE SAVAGE-ZERFOSS SCHOLARSHIP was established in 1986 by Dr. Thomas B. Zerfoss, Jr. (B.S. 1917, M 1922), and his wife, Dr. Kate Savage Zerfoss (B.S. 1918). The scholarship provides assistance to students preparing for medical school.

THE ELIZABETH D. SCRUGGS SCHOLARSHIP was established in 2011 through a bequest from Elizabeth Dixon Scruggs (B.A. 1938) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science.

THE A. L. SELIG SCHOLARSHIP was established in 1981 by Bebe Selig Burns (B.A. 1968) in memory of her grandfather.

THE JAMES C. SEUSS SCHOLARSHIP was established in 2007 by James Cole Seuss (B.A. 1985) to provide scholarship support to deserving undergraduate students enrolled in the College of Arts and Science with preference to meritorious international students with financial need.

THE WALTER A. SNELL SCHOLARSHIP was established in 2005 by Maureen M. Snell in memory of her husband, Walter A. Snell (B.A. 1942), to benefit worthy undergraduate students in the College of Arts and Science.

THE ELIZABETH MORGAN SPIEGEL SCHOLARSHIP was established in 1999 by Elizabeth Morgan Spiegel to celebrate her fortieth class reunion.

THE MARY ELEANOR STEELE SCHOLARSHIP was established in 1941 through a bequest from Professor Emeritus Robert Steele and his wife, Elizabeth, in memory of their daughter. Professor Steele was a member of the faculty from 1901 until 1938. Preference is given to a female student majoring in Latin or classical studies.

THE SARA SAWYER STONE, BELO STONE, M. D., LARRY STONE, JR., MARILYN STONE CHRISTIAN, PAUL BUTLER STONE, MARLA STONE SCHUBERT, AND DAVID BELO STONE SCHOLARSHIP was established in 1979 by Marnette Butler Stone (A 1955) and Lawrence A. Stone, M.D. (B.A. 1954) to honor the memories of his father, Belo Stone, M.D. (M.D. 1927), his mother, Sara Sawyer Stone, and son, Larry Stone, Jr., and to honor their children. The scholarship provides need-based financial aid to worthy undergraduates at the College of Arts and Science with preference given to students from South Texas interested in premed studies.

THE KAREN JOACHIM SOBOTKA B.A. '83 SCHOLARSHIP was established in 2008 by Karen Joachim Sobotka (B.A. 1983) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science.

THE STRATIGOS FAMILY SCHOLARSHIP was established in 2000 by Dr. William Stratigos and Dr. Deborah Feller in honor of their daughter, Stephanie Stratigos (B.A. 2004). The scholarship provides assistance to deserving Arts and Science undergraduates who are citizens and residents of the United States. First preference is given to female students from the states of New York and New Jersey. Secondary preference is given to female students from one of the other forty-eight states.

THE DALLAS BOWER SUHRHEINRICH AND WILLIAM H. SUHRHEINRICH SCHOLARSHIP was established in 2003 through the proceeds of a trust set up by Dallas Bower Suhrheinrich to provide scholarships to deserving undergraduate students based on financial need. Her husband, William H. Suhrheinrich, graduated from Vanderbilt in 1934.

THE CHRISTI AND JAY TURNER SCHOLARSHIP was established in 2012 by the James Stephen Turner Family Foundation to honor Christi Whalley Turner (B.S. 1991) and James Stephen Turner, Jr. (B.A. 1992, J.D. 1999), and to provide scholarship support based on financial need to deserving undergraduate students enrolled in the College of Arts and Science.

THE TURNER FAMILY SCHOLARSHIP was established in 2012 by Steve and Judy Turner to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science.

THE UNDERGRADUATE SCHOLARSHIP FUND FOR THE COLLEGE OF ARTS AND SCIENCE, established in 1994, is made possible through gifts from alumni and friends, to provide scholarship support based on financial need to deserving undergraduate students in the College of Arts and Science.

THE VANMETER FAMILY SCHOLARSHIP was endowed in 2003 by the VanMeter family of Lexington, Kentucky, to provide scholarships with preference to students who are graduates of Episcopal High School in Alexandria, Virginia, and to students from the Commonwealth of Kentucky.

THE ANNE MARIE AND THOMAS B. WALKER JR. SCHOLARSHIP was established in 2006 by Thomas B. Walker Jr. (B.A. 1945) and Anne Marie Newton Walker to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science. Preference is given to students who are graduates of St. Mark's School of Texas, the Hockaday School, and Highland Park High School in Dallas.

THE DOROTHY N. AND DICK H. WALLMAN MEMORIAL SCHOLARSHIP was endowed in 1997 by Richard F. Wallman (B.E. 1972) and his wife, Amy, in memory of his mother, Dorothy Niederhauser Wallman (B.A. 1939), and his father, Dick H. Wallman. Preference is given to female students from Nashville.

THE EVA AND HENRY WALLMAN SCHOLARSHIP was established in 2008 by Richard F. Wallman (B.A. 1972) and his wife, Amy, in memory of Mr. Wallman's paternal grandparents. The scholarship provides need-based assistance to deserving undergraduate students in the College of Arts and Science with preference to female freshman students from the Nashville area. Secondary preference should be given to female freshman students from Tennessee; as a third preference, freshman female students from the state of Florida.

THE ROSA LEE WALSTON SCHOLARSHIP was established in 1970 by Lester H. Smith (B.E. 1954) and his wife, Kathryn L. Smith (B.A. 1953), to honor her aunt. Dr. Walston headed the Department of English at Georgia Women's College for many years. She died in 1995.

THE BERTHA EVANS WARD SCHOLARSHIP was established in 1970 by Mabel Ward in memory of her sister. This award is made to a female student majoring in the humanities.

THE WILLIAM K. WARREN FOUNDATION SCHOLARSHIP was established in 1984 by Mrs. William K. Warren (Natalie Overall, B.A. 1920) in honor of her sisters, Katrina Overall McDonald (B.A. 1918) and Dorothy Overall Wells (B.A. 1930). The fund was renamed in 2003.

THE MARION B. AND BRENT S. WATTS MEMORIAL SCHOLARSHIP, established in 1975 with a bequest from Marion B. Watts, is available to students majoring in science.

THE DRURY MCNARY DAVIS AND EMILY D. AND HOMER C. WEED SCHOLARSHIP was established in 2006 through a bequest from Emily Davis Weed (A 1946) to provide scholarship support based on need for undergraduate students enrolled in the College of Arts and Science.

THE HERRON P. AND CARY W. WEEMS SCHOLARSHIP was established in 2000 by Herron P. Weems (B.A. 1975) and his wife, Cary W. Weems, to celebrate his twenty-fifth class reunion and to provide scholarship grants to deserving Arts and Science undergraduates who have proven financial need and demonstrated satisfactory academic progress. Preference will be given to students from the states of Georgia and Mississippi.

THE COURT AND CHART WESTCOTT SCHOLARSHIP was established in 2002 by Carl H. Westcott and his wife, Jimmy Westcott, to honor their sons, Court Hilton Westcott (B.A. 2001) and Chart Hampton Westcott (B.A. 2007), and to provide need-based scholarships to deserving undergraduate students enrolled in the College of Arts and Science.

THE MARGRETTA H. WIKERT AND CODY M. WIKERT SCHOLARSHIP was established in 2006 by James R. Wikert and Alinda Hill Wikert in appreciation for the Vanderbilt education received by their children, Margretta (B.A. 2009) and Cody (B.A. 2009), and in honor of John S. Beasley II (B.A. 1952, J.D. 1954), Vice Chancellor Emeritus and Counselor to the Chancellor, for his devotion to Vanderbilt and its people, and in honor of the brave and dedicated men and women in the armed forces serving the United States of America. The scholarship provides need-based assistance to deserving undergraduate students in the College of Arts and Science with preference to students who have lost a parent in military service to their country and second preference to students with a parent who is active or retired military.

THE EUGENIA HOLDER WILCOX AND WILLIAM J. WILCOX JR. SCHOLARSHIP was established in 2005 by William H. Wilcox (B.A. 1974) and Elizabeth L. Todd, Ph.D., to provide need-based scholarship support to deserving undergraduate students enrolled in the College of Arts and Science. Preference in awarding should be given to students from Oak Ridge and East Tennessee. The donors wish for consideration to additionally be given to selecting students who have indicated an interest in science or who have shown that they possess a science background. The scholarship honors Eugenia Holder Wilcox and William J. Wilcox, Jr., parents of William H. Wilcox.

THE ALFRED W. WILSON MEMORIAL SCHOLARSHIP was established in 1989 by family and friends to honor Alfred Wilson (B.A. 1964), who died in a 1985 plane crash.

THE CAROLINE C. AND WILLIAM MOSS WILSON SCHOLARSHIP was established in 2005 by Mr. William M. Wilson (B.A. 1970) to provide annual scholarship support, full-tuition, to an undergraduate with high ability and financial need enrolled in the College of Arts and Science.

MILTON A. AND ROSLYN Z. WOLF SCHOLARSHIP was established in 2006 by the Milton A. and Roslyn Z. Wolf Family Foundation to provide need-based scholarships to undergraduate students enrolled in the College of Arts and Science.

THE J. DOUGLASS AND DOROTHY K. WOOD SCHOLARSHIP was established in 1990 by a Vanderbilt alumnus to honor his parents. The fund provides financial assistance to women and minority students majoring in physics.

THE LINDA ELIZABETH WYTHES CLASS OF 1993 SCHOLARSHIP was endowed in 1993 by Mr. and Mrs. Paul M. Wythes to honor their daughter.

Blair School of Music Scholarships

THE PETER AND LOIS FYFE SCHOLARSHIP was established in 1984 to provide tuition aid for students in the precollegiate program. In 1995, the Fyfes designated the scholarship to benefit undergraduates. Peter Fyfe joined the Blair faculty in 1964 as adjunct professor of organ and has served as the university organist.

THE KENNETH L. AND ANNE FOSTER ROBERTS SCHOLARSHIP was endowed in 1993 by Vanderbilt University Trustee Kenneth L. Roberts (B.A. 1954, J.D. 1959) and his wife, Anne Foster Roberts (B.A. 1955). Financial need is a consideration in selecting recipients.

THE MARION A. KATZ SCHOLARSHIP was established in 2000 by Peter and Marion Katz to provide scholarship assistance to a student specializing in cello, an instrument cherished greatly by Marion Katz.

THE WILMA WARD SCHOLARSHIP was established in 2008 through a bequest from Wilma Ward of Nashville, Tennessee, to provide scholarship support to undergraduate students enrolled in the Blair School of Music. She was a long-time friend and generous supporter of the Blair School where a courtyard was dedicated to her in 2003. A portrait of her hangs near the entry to the courtyard.

School of Engineering Scholarships and Loan Funds

THE R. G. ANDERSON SCHOLARSHIP was established in 2005 by R. G. Anderson (B.E. 1965) of Nashville, Tennessee, to provide need-based scholarship assistance to deserving undergraduates enrolled in the School of Engineering.

THE VAN THOMPSON BROWN FAMILY SCHOLARSHIP was established in 2010 by Noel Brown Grice (B.S. 1977) to honor her many family connections to Vanderbilt including her father, Van Thompson Brown, Sr. (B.E 1949, B.E. 1950); her brother, Van Thompson Brown, Jr. (B.E. 1985); and her son, Mitchell A. Williams (B.S. 2010), and to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering. Preference will be given to female students.

THE CAROLYN C. AND ROBERT R. BUNTIN II SCHOLARSHIP was established in 2007 by Robert R. Buntin II (B.E. 1957) to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering.

THE M. TIMOTHY CAREY SCHOLARSHIP was established in 2010 by M. Timothy Carey (B.E. 1966) and Bobbie R. Carey, to provide scholarships based on financial need to undergraduates in the School of Engineering.

THE FRED J. CASSETTY JR. SCHOLARSHIP IN ENGINEERING was established in 2006 by Fred J. Cassetty, Jr. (B.E. 1960) to provide scholarship grants to deserving undergraduate students enrolled in the School of Engineering.

THE CASSON FAMILY SCHOLARSHIP IN ENGINEERING was established in 2006 by Walter A. Casson, Jr. (B.E. 1956) to provide scholarship assistance based on financial need to deserving undergraduates enrolled in the School of Engineering.

THE CHEVRON HUMAN ENERGY SCHOLARSHIP was established in 2010 by the Chevron Corporation to provide need-based financial support to deserving students in the School of Engineering. Preference is given to undergraduates who are pursuing programs of study that relate to the field of energy and may include students majoring in chemical, civil, electrical, and mechanical engineering.

THE WILBERT E. CHOPE MEMORIAL SCHOLARSHIP was established in 1993 by Douglas B. Chope (B.S.E. 1986, M.B.A. 1988) and his wife, Teresa Ford Chope (B.A. 1987), to honor the memory of his father, who died in 1984. A member of the class of 1945, Wilbert Chope was the founder and CEO of Industrial Nucleonics/AccuRay. Awards are available to majors in computer science and electrical engineering.

THE ED AND SUE CLARK SCHOLARSHIP was established in 2006 by G. Edmond Clark (B.E. 1976) and Sue Clark (B.A. 1977) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the School of Engineering.

THE W. ROBERT CLAY SCHOLARSHIP was established in 2004 by W. Robert Clay (B.E. 1954) of Bradenton, Florida, to provide scholarship grants to deserving undergraduate students enrolled in the School of Engineering.

THE COBLE FAMILY SCHOLARSHIP was established in 2006 by Neely Coble, Jr. (B.E. 1949) and G. William Coble II (B.E. 1955) to provide scholarship assistance based on financial need to deserving undergraduates enrolled in the School of Engineering.

THE CORENSWET MEMORIAL SCHOLARSHIP was established in 1975 by Abe Corenswet (B.E. 1931) to honor members of his family. He died in 1994.

THE DOUG AND PENNY DAVIS SCHOLARSHIP was established in 2005 by Douglas S. Davis (B.E. 1965) to provide scholarship assistance to deserving undergraduates enrolled in the School of Engineering.

THE deZEVALLOS FAMILY SCHOLARSHIP was established in 2005 by Pamela Hathcock deZevallos (E. 1967) and Edward deZevallos (B.A. 1965) to provide scholarship assistance to deserving undergraduates enrolled in the School of Engineering. Preference should be given to students from Houston, Texas, with second preference to students from Texas.

THE DRAKE FAMILY ENGINEERING SCHOLARSHIP was established in 2012 by Charlotte Drake and John A. Drake Jr. (BE 1972, EMBA 1999) to provide scholarship support based on financial need to deserving undergraduate students in the School of Engineering. Preference in awarding should be given to students studying civil engineering.

THE DYER FAMILY SCHOLARSHIP was endowed in 2003 by David F. (B.E. 1971) and Harriet E. Dyer (E 1973).

THE EAC AND COV SCHOLARSHIP was established in 2012 by engineering alumni to honor Kenneth F. Galloway who served as dean of the School of Engineering from 1996 to 2012 and to provide scholarship support based on financial need to deserving undergraduate students enrolled in the School of Engineering.

THE EVERETT AND ELIZABETH FIELDS MEMORIAL SCHOLARSHIP was established in 2003 by Charles E. Fields, Jr. (B.E. 1968) to provide scholarship grants to deserving undergraduate students enrolled in the School of Engineering who have proven financial need.

THE PATRICK AND CHARLOTTE FISCHER SCHOLARSHIP was established in 2008 by Patrick C. Fischer and Charlotte F. Fischer of Rockville, Maryland, to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering. Preference is given to students double-majoring in computer science and mathematics.

THE JOSEPH AND LORI FLOWERS SCHOLARSHIP was established in 2003 by Joseph K. Flowers (B.E. 1988) and Lori Manix Flowers (B.A.

1988) to provide scholarship assistance to deserving undergraduates enrolled in the School of Engineering.

THE JAMES GEDDES MEMORIAL SCHOLARSHIP was established in 1975 by James Geddes Stahlman (B.A. 1919), a member of the Vanderbilt University Board of Trust from 1930 until his death in 1976, to honor his grandfather, who was for sixty-three years a location and design engineer for the Louisville and Nashville Railroad. Preference in awarding is given to students in the School of Engineering from the six states (Alabama, Florida, Kentucky, Louisiana, Mississippi, and Tennessee) originally traversed by the railroad. In 2007 a secondary preference to students who have served in the military was added, and in 2010 the scholarship was changed to support students based on financial need.

THE GIANGIULIO FAMILY SCHOLARSHIP was established in 2005 by Thomas P. and Susan B. Giangiulio, parents of Derek Thomas Giangiulio (B.S. 2008, Engineering), to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering.

THE GKW SCHOLARSHIP was established in 2007 by Gerry G. Hull (B.E. 1964) to provide need-based scholarship support to deserving students enrolled in the School of Engineering.

THE HARDAWAY FAMILY SCHOLARSHIP was established in 2007 by L. Hall Hardaway Jr., (B.E. 1957) to provide need-based scholarship assistance to deserving undergraduates enrolled in the School of Engineering.

THE EDGAR W. HERTENSTEIN SCHOLARSHIP was established in 2005 by Edgar W. Hertenstein (B.A. 1941) to provide scholarship assistance to deserving undergraduates enrolled in the School of Engineering.

THE KIBLER FAMILY ENGINEERING SCHOLARSHIP was established in 2007 by Frank M. Kibler, Jr. (B.E. 1969), Anne C. Kibler (B.A. 1970), Caroline M. Kibler (B.S. 1997), and Laura K. Crim to provide need-based scholarship support to deserving undergraduate students who are in their junior or senior year in the School of Engineering. Preference is given to students who are U.S. citizens who are majoring in biomedical, chemical, civil, electrical, or mechanical engineering.

THE PETER D. AND JEANNE KINNEAR SCHOLARSHIP was established in 2009 by Peter D. Kinnear (B.E. 1969) to provide need-based scholarship support to undergraduate students enrolled in the School of Engineering.

THE CAROLYN WALKER KITTRELL SCHOLARSHIP was established in 2008 by Oliver Terry Kittrell (B.E. 1943) to provide need-based scholarship support to deserving undergraduates enrolled in the School of Engineering.

THE HAROLD D. LINEBERRY SCHOLARSHIP was established in 2005 by an anonymous donor to provide scholarship assistance based on financial need to deserving undergraduates enrolled in the School of Engineering.

THE DAVID K. MATTHES SCHOLARSHIP was established in 1971 by Ann Johnson Matthes (B.E. 1968) in memory of her husband. Recipients must maintain a grade point average of at least 2.5, continue to demonstrate financial need, and be involved in service and/or leadership activities on campus.

THE H. EUGENE AND FAY W. MCBRAYER SCHOLARSHIP was established in 2006 by H. Eugene McBrayer (B.E. 1954) to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering.

THE ROBERT H. MCNEILLY MEMORIAL SCHOLARSHIP, established in 1981 by Edwin L. White (E 1920), honors the late Professor McNeilly, a member of the engineering faculty from 1908 until his death in 1925, to provide need-based financial support to deserving students in the School of Engineering. Preference is given to students at the sophomore level or higher who work part time to finance their education.

THE KYSER MIREE SCHOLARSHIP was established in 2010 to honor the memory of Christopher Kyser Miree (B.E. 2009) and his legacy as a student leader and friend to all during his undergraduate years at Vanderbilt and to provide scholarships based on financial need to undergraduates in the School of Engineering.

THE TOM B. AND MARIANA MOORE SCHOLARSHIP FUND was established in 2011 through a bequest from Mariana D. Moore to provide financial support for deserving undergraduate students at the School of Engineering.

THE MURPHY OIL–CLAIBORNE AND ELAINE DEMING SCHOLARSHIP was established in 2010 by the Murphy Oil Corporation of El Dorado, Arkansas, and Mr. and Mrs. Claiborne P. Deming of El Dorado, Arkansas, to provide need-based financial support to deserving students in the School of Engineering. Preference is given to undergraduates who are pursuing programs of study that relate to the field of energy and may include students majoring in chemical, civil, electrical, and mechanical engineering.

THE W. HIBBETT NEEL JR. SCHOLARSHIP was established in 2006 by W. Hibbett Neel, Jr. (B.E. 1963) to provide need-based scholarship support to students in the School of Engineering. Preference is given to students who add to the diversity of the university and are majoring in civil engineering.

THE LLEWELLYN CARDIFF OAKLEY, JR. SCHOLARSHIP was established in 2010 by William E. Oakley (B.E. 1961) to honor his father, Llewellyn Cardiff Oakley, Jr. (B.E. 1930, M.S. 1931), and to provide scholarship support based on financial need to deserving undergraduate students enrolled in the School of Engineering. Preference is given to students whose exceptional leadership and extracurricular involvement overshadow their academic achievement.

THE FRANK L. PARKER SCHOLARSHIP was established in 2009 by Steven M. Hays (B.E. 1973), J. Brent Kynoch (B.E. 1981), Stephen P. Lainhart (B.E. 1974), and Kenneth W. Thomas, Jr. (B.E. 1970), to honor Dr. Frank L. Parker, Distinguished Professor of Environmental and Water Resources Engineering, Emeritus, and professor of civil and environmental engineering, emeritus, and to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering.

THE CHARLES PARMER AND MARGARET MANSON PARMER SCHOLARSHIP was established in 1989 with a bequest from Margaret Manson Parmer.

THE KEVIN R. PUTNEY MEMORIAL SCHOLARSHIP was established in 2011 by Lisa and Alan Putney and an anonymous donor to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering. The scholarship was created in honor of Kevin Ross Putney who was a member of the Class of 2013 when he died unexpectedly in March 2011. Fully committed to his academics, Kevin truly loved to learn and dreamed of a career in cyber security.

THE FREDERICK M. AND JEAN B. RIGGS SCHOLARSHIP was established in 2005 by Frederick M. Riggs (B.E. 1961) of Mission Viejo, California, to provide scholarship grants to deserving undergraduate students enrolled in the School of Engineering.

THE JEFF AND MARIEKE ROTHSCHILD SCHOLARSHIP was established in 2011 by Marieke H. Rothschild and Jeffrey Rothschild (B.A. 1977, M.S. 1979) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the School of Engineering.

THE FRAN KAY SCHWAIGER ENGINEERING SCHOLARSHIP was established in 2013 by Fran Kay Weiss (formerly Fran Kay Schwaiger) to provide scholarship support based on financial need to deserving undergraduate students enrolled in the School of Engineering. Preference in awarding will be given to female graduates of any high school in Cullman County, Alabama, with second preference to female students from Alabama.

THE WILL H. SHEARON JR. SCHOLARSHIP was endowed in 1964 through the will of Mr. Shearon, who graduated from Vanderbilt in 1936, magna cum laude, with a B.E. in chemical engineering.

THE SMITH SECKMAN REID ENGINEERING SCHOLARSHIP was established in 2003 by Smith Seckman Reid, Inc. of Nashville, Tennessee, and its employees who are alumni of Vanderbilt's School of Engineering, to provide need-based scholarship support to deserving undergraduates enrolled in the School of Engineering.

THE JOE C. THOMPSON SCHOLARSHIP was established in 2005 by Cathy Jo Thompson Linn (B.S. 1974, M.S. 1978, Ph.D. 1980) and Joseph L. Linn (B.S. 1974, Ph.D. 1980) of Sammamish, Washington, to honor

her father and to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering.

THE UNDERGRADUATE SCHOLARSHIP FUND FOR THE SCHOOL OF ENGINEERING was established in 1999 with gifts from alumni and friends to provide scholarship support based on financial need to deserving undergraduate students in the School of Engineering.

THE WALTERS FAMILY SCHOLARSHIP was established in 2008 by Thomas R. Walters (B.E. 1976) to provide need-based scholarship support to deserving undergraduate students enrolled in the School of Engineering.

THE J. R. WAUFORD SCHOLARSHIP IN ENGINEERING was endowed in 2003 by J. Roy Wauford, Jr. (B.E. 1952) to provide need-based scholarships to deserving undergraduates from Tennessee. Preference should be given to undergraduates majoring in civil and environmental engineering.

THE YOSAITIS SCHOLARSHIP was established in 2010 by Robert W. Yosaitis, Jr. (B.S. 1982) of Las Vegas, Nevada, to provide need-based financial support to deserving undergraduate students in the School of Engineering.

THE JAMES PAUL YOUNGBLOOD MEMORIAL SCHOLARSHIP was established in 2000 through a bequest from the estate of Florence Youngblood. The scholarship, in memory of her late husband, James Paul Youngblood, will provide scholarship assistance to students in the Department of Chemical Engineering .

Peabody College Scholarships and Loan Funds

THE ANONYMOUS PEABODY SCHOLARSHIP was established in 2010 by anonymous donors to provide financial support to deserving students enrolled at Peabody College.

THE VIRGINIA RUTH BARNES SCHOLARSHIP was established in 2010 through a bequest from Virginia Ruth Barnes (M.A. 1952) to provide need-based financial support for deserving undergraduate students in Peabody College. After receiving her master's from Peabody, she taught home economics at various colleges throughout the years.

THE T. O. (BUNT) AND GLADYS MAYS BEASLEY SCHOLARSHIP was established in 2003 through a bequest from Gladys Mays Beasley to provide scholarship support to deserving undergraduate students at Peabody College.

THE EULEEN BROWN BERRY SCHOLARSHIP was endowed in 1990 through the bequest of Euleen Berry (B.A. 1923), a former teacher in Tennessee and Arkansas.

THE JOSEPHINE R. BINNS SCHOLARSHIP FOR TEACHERS was established in 1997 by Josephine R. Binns, a 1930 Peabody graduate and Nashville community leader. The scholarship benefits students who plan teaching careers, with preference given to students from the Southeast.

THE HUGH L. W. BRINKLEY SCHOLARSHIP was established in 1940 by Mrs. Elizabeth Currier in memory of her brother.

THE BURLESON FAMILY SCHOLARSHIP was established in 2004 by Mr. and Mrs. Gene E. Burleson in honor of their children Lauren Ashley Burleson (B.S. 2001, M.Ed. 2002) and Alan Edward Burleson (B.S. 2005). Preference is given to students from Atlanta, Georgia.

THE A. J. CAVERT MEMORIAL SCHOLARSHIP was established in 1921 by Misses Annie Cavert, Corrine Cavert, Ida Cavert, and Mr. and Mrs. Tillman Cavert to honor the memory of Dr. A. J. Cavert. Preference is given to graduates of Hume-Fogg High School in Nashville.

THE ELIZA M. CLAYBROOKE MEMORIAL SCHOLARSHIP was established in 1947 by the bequest of Virginia O. Claybrooke in memory of her sister, Eliza, to provide financial assistance to "a lineal descendent of some Confederate Soldier."

THE KENDRA LEIGH CRAWFORD SCHOLARSHIP was established in 2004 as the Crawford Family Scholarship by Sue Crawford and was renamed in 2009 to honor her daughter, Kendra Leigh Crawford (B.S. 2003, M.Ed. 2004). The scholarship provides need-based support to undergraduate students enrolled in Peabody College with preference to Special Education majors.

THE MAGGIE P. CUNNIGGIM MEMORIAL SCHOLARSHIP was established in 1934 with a bequest from Mrs. Alberta P. Bourne.

THE JAMES ATCHISON AND MAME S. DALE MEMORIAL SCHOLARSHIP was established in 1959 with a bequest from Dr. James Atchison Dale (D.D.S. 1891) and his wife, Mame Shuler Dale.

THE MARY CRITTENDEN THOMAS BISHOP DALE SCHOLARSHIP was established in 1996 by Nancy Dale Palm to honor her mother, a Peabody graduate in the class of 1910. An elementary school teacher, Mary Dale educated six daughters after the 1926 death of their father, Dillard Young Dale, a 1904 Peabody graduate. The six sisters are Vanderbilt alumnae: Katherine Dale Potts (B.A. 1946), Nancy Dale Palm (B.A. 1942), Lillian Dale Trabue (A 1941), Ruth Dale Carmichael (A 1938), Dorothy Dale Gray (A 1935), and the late Mary Elizabeth Dale Spearman (B.A. 1932). The scholarship benefits elementary education majors with a preference given to students from Tennessee or Texas.

THE DOSCAS FAMILY SCHOLARSHIP was established in 2008 by John C. and Anne Doscas to honor their daughter, Michelle Elizabeth Doscas (B.S. 2011), and in appreciation of her undergraduate experience at Vanderbilt, and to provide need-based scholarship support to deserving undergraduate students enrolled in Peabody College.

THE CHRISTINE EHRING MEMORIAL STUDENT ASSISTANCE FUND was established as a loan fund by friends and family.

THE GERTRUDE JOHNSON EVANS SCHOLARSHIP was established in 2011 by gifts from the estate of Dorothy Evans Runnels (B.A. 1941), in honor of her mother and to provide scholarships based on financial need to deserving undergraduates in Peabody College.

THE EMILY AND LAUREN FAILLA SCHOLARSHIP was established in 2010 by friends of the Failla family to provide scholarship support to deserving students at Peabody College. Preference in awarding is given to female undergraduates majoring in human and organizational development. The scholarship honors the memories of Emily Jane Failla (B.S. 2003, M.Ed. 2005) and Lauren Elizabeth Failla (B.S. 2007) who were alumna of Peabody College and majored in human and organizational development.

THE ALBERT J. AND MARGARET K. GASSER MEMORIAL SCHOLARSHIP was established in 1976 by Albert Gasser in honor of his late wife.

THE WARREN AND CATHERINE RICE GORRELL SCHOLARSHIP was established in 2005 by J. Warren Gorrell Jr. and Catherine Rice Gorrell, parents of Courtney Rice Gorrell (B.S. 2009), to benefit undergraduate students enrolled at Peabody College based on financial need.

THE PATRICIA AND RODES HART SCHOLARSHIP was established in 2009 by Patricia Ingram Hart (B.A. 1957) and H. Rodes Hart (B.A. 1954), Vanderbilt trustee, emeritus, in honor of Mr. Hart's 55th reunion of the Class of 1954, to provide need-based scholarships to deserving undergraduates at Peabody College.

THE CAROLINE LUCY HEAFEY SCHOLARSHIP was established in 1997 by Mr. and Mrs. Richard John Heafey to honor their daughter, Caroline, a Peabody graduate in the Class of 1997.

THE WILLIAM AND SALLIE HUME SCHOLARSHIP was established in 1967 with a bequest from Mrs. Hume (Sallie McKay) to honor her husband, William Bradford Hume (B.S. 1909, L 1910).

THE H. REID HUNTER ENDOWED LOAN FUND was established in 1989 with a bequest from H. Reid Hunter (Ph.D. 1937).

THE BOB INNES SCHOLARSHIP was established in 2011 by colleagues and friends to provide need-based scholarship support to deserving undergraduates at Peabody College majoring in human and organizational development. The scholarship is in honor of Professor Bob Innes, who was instrumental in creating the HOD program at Peabody.

THE JAMISON SCHOLARSHIP FUND was established in 1971 by Henry D. Jamison, Jr., and the Jamison Foundation, Inc.

THE BILL JUSTICE MEMORIAL FUND was established by friends of Bill Justice (P.B.S. 1973) to provide emergency student loans at the discretion of the dean.

THE KENNEDY FAMILY SCHOLARSHIP was established in 2009 by James C. Kennedy to provide scholarship support based on financial need to deserving undergraduate students at Peabody College.

THE KURZ FAMILY SCHOLARSHIP was established in 2002 by Charles Kurz II, together with additional gifts from other members of the Kurz family and the Kurz Foundation. Charles Kurz III received his undergraduate degree from Peabody College with honors in 2004 and a master's degree from Peabody College in 2005. The awarding of the Kurz Scholarship may rotate to provide financial assistance to: (1) undergraduates in the Human and Organizational Development program at Peabody College for their junior and senior year; (2) undergraduates of Peabody College who, in their senior year, have enrolled in the fifth-year master's program in Organizational Leadership. Recipients should have proven financial need, demonstrate satisfactory academic progress, and remain in good academic standing.

THE LAI FAMILY FOUNDATION SCHOLARSHIP was endowed in 2002 by Chris Lai (B.S. 1998) and the Lai Family Foundation to benefit Peabody undergraduates who have proven financial need and satisfactory academic progress.

THE MINA LATIMER LANHAM SCHOLARSHIP was established in 1997 with a bequest from Elizabeth Lanham in honor of her mother, a Peabody graduate in the Class of 1897. Mrs. Lanham served as a teacher and principal in schools located in Georgia, Louisiana, and Texas.

THE BONNIE TERWILLIGER LEADBETTER SCHOLARSHIP was established in 1992 as a loan fund by Mr. and Mrs. J. Ronald Terwilliger to honor their daughter, Bonnie Leigh, a 1992 Peabody magna cum laude graduate. She received her master of education degree in 1994 and began a career in teaching. In 2010, Bonnie Terwilliger Leadbetter added to the fund and its purpose was changed to provide need-based scholarship support to deserving undergraduate students enrolled in Peabody College.

THE JOHN W. LITTLE EMERGENCY LOAN FUND was established by Mrs. John W. Little and friends of her late husband to provide emergency loans to students.

THE J. C. LOONEY AND MYRTLE LOONEY SCHOLARSHIP was established in 1964 with gifts from Mrs. Myrtle Looney (P.B.A. 1903) and her nephew, the Honorable James Cullen Looney (P.B.A. 1921, B.A. 1924, L 1926).

THE MADDEN FAMILY SCHOLARSHIP was established in 2009 by John P. Madden, John W. Madden II (B.S. 1988) and Steven Holt Madden (B.S. 1991) to provide need-based scholarship support to deserving undergraduate students enrolled in Peabody College.

THE MCALLEN-LOONEY SCHOLARSHIP was endowed in 2002 by Mrs. Margaret L. McAllen (B.A. 1957) of Weslaco, Texas. First preference will be given to students majoring in secondary education. Secondary preference will be given to students majoring in education. In conjunction with the above preferences in major field, preference will be given to a student from Texas. High academic achievement will also be a consideration in the selection process.

THE JAMES SPENCER MCHENRY SCHOLARSHIP was established by Mrs. Carrie Hoyte McHenry to honor the memory of her husband, James Spencer McHenry (A 1887).

THE MCLAIN FAMILY SCHOLARSHIP was established in 2009 by Michael A. and Jane T. McLain to honor their daughter Jordan (B.S. 2006, M.Ed. 2008) and their son Matthew (B.S. 2003) and in appreciation of the fine education they received at Vanderbilt. It provides need-based scholarship support to undergraduate students enrolled in Peabody College. Preference in awarding is given to students with very strong personal achievement, exceptional leadership skills, and extracurricular involvement.

THE REX V. MCPHERSON II FAMILY SCHOLARSHIP was established in 2005 by Rex V. McPherson II (B.A. 1974) and his wife, Jan, to provide scholarship support based on financial need to deserving undergraduate students enrolled at Peabody College. Preference in awarding should be given to students whose exceptional leadership and extracurricular involvement surpasses their otherwise qualifying academic achievement. It was given in grateful appreciation for the educational opportunities afforded their son and daughter, Trey (B.S. 2003) and Ginny (B.S. 2006), by the Vanderbilt experience.

THE KATHRYN AND MARGARET MILLSPAUGH TEACHER SCHOLARSHIP was established in 2012 through bequest gifts from Kathryn Gail Millspaugh (B.A. 1935, M.S. 1936) and Anna Margaret Millspaugh (B.S. 1942, M.A. 1949) to provide scholarship support based on financial need to deserving undergraduate students in Peabody College. Preference in awarding is given to undergraduates in Peabody College pursuing majors in elementary or secondary education, with additional preference given to Peabody students who are interested in teaching in the public school system. The Millspaugh sisters were elementary school teachers and principals in Metro Nashville public schools for over 45 years.

THE MONTELEONE FAMILY SCHOLARSHIP was established in 2005 by the Monteleone Family Foundation and its directors, Mr. and Mrs. William Monteleone, Jr., to provide scholarship assistance to deserving undergraduates enrolled in Peabody College.

THE STELLA MOSKO SCHOLARSHIP was established in 2011 by Alexandra and John Mosko to provide scholarship support based on financial need to deserving undergraduate students enrolled in Peabody College. The scholarship is in honor of Mr. Mosko's mother, Stella Mosko, and the Moskos' daughter, also named Stella (B.S. 2010).

THE LAVERNE NOYES SCHOLARSHIP was established with a bequest in 1938 to provide scholarship assistance to World War I veterans and their descendants.

THE LANIER AND IRENE PARNELL SCHOLARSHIP was endowed in 1979 to assist students from Tennessee, South Carolina, Georgia, Alabama, Mississippi, Louisiana, or Arkansas.

THE PASTRICK FAMILY SCHOLARSHIP was established in 2006 by R. Scott and Courtney Clark Pastrick of Bethesda, Maryland, to provide scholarship support to deserving undergraduate students enrolled in Peabody College.

THE PATTERSON SCHOLARSHIPS were established in 2009 by James B. Patterson (M.A. 1970) to develop engaged future citizens and leaders who will understand the critical role of public K–12 education for individual achievement and our national well-being and who will help develop creative solutions to the challenges it faces. Preference in awarding is given to undergraduates in Peabody College pursuing majors in elementary or secondary education, with additional preference given to Peabody students who have participated in community service activities related to public education.

THE PENDLETON-MALCOM SCHOLARSHIP was endowed in 1993 with a bequest from Louzelle Thompson Malcom (P.M.A. 1943) of Tulsa, Oklahoma. Preference is given to students with a second major in English.

THE POARCH FAMILY SCHOLARSHIP was established in 2010 by Donald and Cynthia Poarch to provide scholarships based on financial need to undergraduates at Peabody College. Preference should be given to students with a strong history of community service.

THE CHARLES L. AND JEAN RUYLE POWELL SCHOLARSHIP FUND was established in 2006 through a bequest from Jean Ruyle Powell to benefit undergraduate students at Peabody College.

THE MARJENE MOGAN PROCTOR SCHOLARSHIP was established in 2005 through a bequest from Tom H. Proctor (B.A. 1949, J.D. 1951) to be used for need-based merit scholarships for undergraduate students in their senior year at Peabody College.

THE ARNOLD S. AND RENA J. ROBERTS MEMORIAL SCHOLARSHIP was established in 2006 through a bequest from Rena J. Roberts (M.S. 1941) to provide need-based scholarships to worthy undergraduate students in Peabody College, with preference to students from Alabama.

THE BERT E. ROGERS JR. AND PEARL D. ROGERS SCHOLARSHIP was established in 2007 through the proceeds of a trust established by Bert E. Rogers Jr. (P 1941) to provide scholarship support based on financial need to deserving students at Peabody College.

THE DOROTHY EVANS RUNNELS SCHOLARSHIP was established in 2011 by gifts from the estate of Dorothy Evans Runnels (B.A. 1941) to provide scholarships based on financial need to deserving undergraduates in Peabody College.

THE ROBERT STERLING RUNNELS SCHOLARSHIP was established in 2011 by gifts from the estate of Dorothy Evans Runnels (B.A. 1941), in honor of her husband and to provide scholarships based on financial need to deserving undergraduates in Peabody College.

THE SALYER FAMILY SCHOLARSHIP was established in 2006 by F. Scott Salyer, Lynsey Salyer, and Stefanie Ann Salyer (B.S. 2005) to provide need-based scholarship support to deserving undergraduate students enrolled in Peabody College.

THE MARY SCALES MEMORIAL SCHOLARSHIP was established in 1986 by Mrs. Bonnie Scales Foster (P.B.S. 1935, P.M.A. 1939) in memory of her sister, Mary (P.B.S. 1932, P.M.A. 1939). Mrs. Foster died in 1990.

THE J. HOWARD AND SARA FAY SCHWAM SCHOLARSHIP was established in 2000 through a bequest from Sara K. Schwam (M.A. 1945) to provide need-based scholarships to deserving undergraduates enrolled in Peabody College.

THE SHAPIRO-SILVERMAN FAMILY SCHOLARSHIP was established in 2006 by Elizabeth Shapiro Silverman (B.A. 1975) and Stephen I. Silverman to provide scholarship assistance based on financial need to deserving undergraduates enrolled in Peabody College.

THE STADLER FAMILY SCHOLARSHIP was established in 2005 by Julie Carell Stadler and George B. Stadler (MBA 1991) to provide scholarship support based on financial need to deserving undergraduate students at Peabody College.

THE UNDERGRADUATE SCHOLARSHIP FUND FOR PEABODY COLLEGE was established with gifts from alumni and friends to provide scholarship support based on financial need to deserving undergraduate students in Peabody College.

THE UNITED DAUGHTERS OF THE CONFEDERACY SCHOLARSHIP was established in 1927 by the Mary Mildred Sullivan Chapter of the UDC.

THE WACHTMEISTER FAMILY SCHOLARSHIP was established in 2008 by Hans F. E. Wachtmeister (Ed.D. 1986) and Anne Marie Wachtmeister to provide need-based scholarship support to deserving undergraduate students enrolled in Peabody College.

THE MARY FRANCES WHITE SCHOLARSHIP was established in 1975 by Joseph Benjamin White (B.S. 1917) to pay tribute to his wife, Mary Frances Stephenson White, and to provide scholarship support based on financial need to deserving undergraduate students at Peabody College.

THE ADAM YOUNG SCHOLARSHIP was established in 2007 by Vincent J. Young of Bedford, New York, to provide need-based scholarship support to deserving undergraduate students enrolled in Peabody College.

Military Scholarships

ARMY ROTC SCHOLARSHIPS. Refer to the chapter on Special Programs for Undergraduates for information concerning eligibility and application procedures for these awards.

NAVAL ROTC SCHOLARSHIPS. Refer to the chapter on Special Programs for Undergraduates for information concerning eligibility and application procedures for these awards. In addition to the traditional scholarship program, Tweeddale Scholarships are available for freshmen and sophomores not previously affiliated with the NROTC program. Preference for Tweeddale Scholarships is given to students majoring in engineering, chemistry, or physics.

AIR FORCE ROTC SCHOLARSHIPS are available to Vanderbilt students in the Air Force ROTC program administered through Tennessee State University. Information on application procedures for these scholarships can be obtained from Commanding Officer, AFROTC, Tennessee State University, Nashville, Tennessee 37209.

College of Arts and Science

A&S

A Community for Liberal Learning

"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 about 400 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

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, workshops, 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 in 117 Alumni, on the central campus close to most class locations, 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 *vanderbilt.edu/writing*.

One-on-one tutoring in many subjects is available through Arts and Science Tutoring located in Alumni Hall. This service is 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) — 20 Windows systems, focusing on language instruction
Microcomputer Laboratories (Garland Hall 119) —24-seat lab/30-seat classroom with 54 Windows and iMac systems
Microcomputer Laboratories (Stevenson Center 2200) — 30 Windows systems
Microcomputer Laboratories (Wilson Hall 120) — 30 iMac systems

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 VUmail and e-resources in the libraries, as well as course materials in OAK. While use of the above facilities is free, printing is charged at a rate of four cents per page.

The Garland and Wilson labs are open six days a week, with the Garland lab available for walk-in use for more than ninety hours per week. The computer classrooms in the Center for Second Language Studies, Stevenson Center, and Wilson Hall are available for walk-in use during the late afternoon and evening hours. 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 faculty advisers through CASPAR (College of Arts and Science Pre-major Academic Advising Resources Center). These first advisers, called "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 especially 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 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, three members of the Office of the Dean of the College, 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 Program 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 hours of course work within the College of Arts and Science, or a minimum of 90 hours for those students with a second major outside the College of Arts and Science.

Limitation on Hours outside the College

Candidates for the bachelor of arts degree must successfully complete a minimum of 102 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 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 to be 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.), and to prepare 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-based disciplines tell us what to do to live most productively and efficiently. But the rest of the curriculum—the humanities and the arts—makes it possible to reflect upon what is right to do with 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 with the self 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 film studies 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 thoughtfully selecting the courses to take for the fulfillment of AXLE requirements prepares students for the more specialized study that they undertake in their major (or majors) beginning in the third year of study.

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 100 or demonstration (by a combined score of 1220 on the Writing and Critical Reasoning sections of the SAT test with a minimum score of 500 in each, or a score of 27 on the English portion combined with a score of 7 on the Writing portion of the ACT test, or by appropriate AP or IB credit in English) of basic skills in English Composition; completion of a First-Year Writing Seminar; completion of a 100-level (introductory) writing course no later than the fourth semester in residence; and completion of either a second 100-level writing course or a 200-level (discipline-specific, major-oriented) writing course or a course in oral communication.

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 100-level and 200-level writing courses are also counted in the thirteen-course Liberal Arts Requirement.

1. The Writing Requirement (three to four courses)
   a. English Composition (appropriate test score or one course)
   b. First-Year Writing Seminar (one course)
   c. 100-level W Requirement (one course)
   d. One 100-level or 200-level W or Oral Communications 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 hours of course work) and earn a minimum number of 120 earned hours in order to graduate.

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 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 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, *On the Road with AXLE,* a College of Arts and Science manual for entering students.

Where to Get Advice

Entering students are assigned pre-major advisers through CASPAR. These pre-major advisers will counsel students through their first three and a half semesters or until they declare a major. At that time, students are assigned advisers in their major departments. Pre-major advisers are specially selected and receive special training on how to help students proceed effectively through the requirements of AXLE and chart a course of study.

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 the student's interests and goals. (This initial contact is typically via phone and/or email.)

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, freshmen 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. 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.

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 university. Most students will complete the requirement by presenting a combined score of 1220 on the Writing and Critical Reading sections of the SAT test with a minimum score of 500 in each, or a score of 27 on the English portion combined with a score of 7 on the Writing portion of the ACT test, or by appropriate AP or IB credit in English. Students who do not must enroll in English 100 in the freshman year.

b) First-Year Writing Seminar (see above).

c) All students must successfully complete at least one Arts and Science 100-level writing course (indicated by a "W")

at Vanderbilt University, regardless of AP or IB credits, SAT scores, or ACT scores earned prior to matriculation. These writing-intensive courses emphasize general writing skills within the context of discipline-specific subject matter. All students are encouraged to complete Part b of the Writing Requirement as soon as possible; **this requirement must be completed no later than the fourth semester** at Vanderbilt University. All Arts and Science 100-level W courses also count in their appropriate distribution areas within the Liberal Arts Requirement. Students may *not* substitute a 200-level writing course for the first 100-level writing course requirement. But students may complete a 200-level writing course before completing a 100W writing course so long as they complete a 100-level writing course by the end of their fourth semester at Vanderbilt.

d) All students must successfully complete either (1) a second Arts and Science 100-level W course, or (2) an Arts and Science 200-level W course, or (3) an approved course in oral communication at Vanderbilt University, regardless of test scores earned prior to matriculation. The 200-level W courses foster advanced, discipline-specific writing skills. Departments or programs that offer these courses determine their specific writing content. In 200-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. 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 inherent to these classes. Students receive regular speaking assignments throughout the semester and regular feedback on their speaking that will contribute toward enhancing effective speaking skills. **All students must complete Part d of the Writing Requirement before graduation.** All Arts and Science 200-level W courses and approved oral communication courses also count in their appropriate distribution areas within the Liberal Arts Requirement.

For Arts and Science 100-level and 200-level writing courses and oral communication courses, please see *as.vanderbilt.edu/academics/axle*.

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 culture 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, film studies, 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 one of Vanderbilt's direct credit foreign study programs or a pre-approved non-Vanderbilt program. Summer study abroad programs must earn 6 or more hours to satisfy this requirement.

Classical Studies in Rome
Vanderbilt in France (semester or summer)
Vanderbilt in Germany
Vanderbilt in Spain (semester or summer)
The Vanderbilt Program in Argentina
The Vanderbilt Program in Australia
The Vanderbilt Program in Austria
The Vanderbilt Program in Brazil
The Vanderbilt Program in Canada
The Vanderbilt Program in Chile
The Vanderbilt Program in the People's Republic of China
The Vanderbilt Program in the Czech Republic
The Vanderbilt Program in Denmark
The Vanderbilt Program in the Dominican Republic
The Vanderbilt Program in England
The Vanderbilt Program in France
The Vanderbilt Program in Germany (Berlin, summer only)
The Vanderbilt Program in Ireland
The Vanderbilt Program in Israel
The Vanderbilt Program in Italy (semester or summer)
The Vanderbilt Program in Japan
The Vanderbilt Program in Mexico (semester or summer)
The Vanderbilt Program in the Netherlands
The Vanderbilt Program in New Zealand
The Vanderbilt Program in Northern Ireland
The Vanderbilt Program in Russia

The Vanderbilt Program in Scotland
The Vanderbilt Program in Senegal
The Vanderbilt Program in South Africa
The Vanderbilt Program in South Korea
The Vanderbilt Program in Spain
The Vanderbilt Program in Sweden

Additional course credit may be earned toward AXLE curriculum requirements by successfully completing study abroad courses through Vanderbilt in France and Vanderbilt in Spain that have A&S numbers and titles. No other courses taken through either of these two programs or through other study abroad programs, including courses offered by other "VU-in" programs and including courses that are deemed to be direct equivalents to A&S courses, count toward AXLE curriculum requirements.

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, 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); departmental placement tests (French, 350; Spanish, 365); 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.

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, film studies, 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 on 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 independent contract major designed in consultation with College of Arts and Science faculty and approved by the College of Arts and Science.

AXLE Curriculum Course Distribution

In addition to the following courses, all First-Year Writing Seminars are classified into the AXLE distribution categories. Please consult the *On the Road with AXLE* booklet or the College of Arts and Science website *as.vanderbilt.edu/academics/axle/writing_seminars.php*.

Humanities and the Creative Arts (HCA)

African American and Diaspora Studies (HCA courses)
AADS. 200. Popular Culture and Black Sexual Politics.
AADS. 202. Mystery, Murder, and Mayhem in Black Detective Fiction.
AADS. 204W. African American Children's Literature.
AADS. 207. Black Women and the Politics of Blackness and Beauty.
AADS. 208W. Soul Food as Text in Text: An Examination of African American Foodways.
AADS. 221. History and Myth: Black Women in the United States.
AADS. 230. Race, Mixed Race, and "Passing."
AADS. 260. Black Diaspora Women Writers.

American Studies (HCA courses)
AMER. 294. The American Studies Workshop.

Anthropology (HCA courses)
ANTH. 219. Comparative Writing Systems.
ANTH. 226. Myth, Ritual, Belief: The Anthropology of Religion.
ANTH. 279. Ceramic Analysis in Archaeology.

Art Studio (HCA courses)
ARTS. 101. Introduction to Studio Art.
ARTS. 102. Drawing and Composition I.
ARTS. 110. Printmaking I: Relief and Intaglio.
ARTS. 111. Printmaking I: Screen Printing and Lithography.
ARTS. 112. Text and Image.
ARTS. 120. Photography I.
ARTS. 121. Alternative Photography.
ARTS. 122. Digital Imaging I.
ARTS. 130. Painting.
ARTS. 140. Ceramics.
ARTS. 141. Sculptural Ceramics.
ARTS. 150. Sculpture.
ARTS. 151. Assemblage.
ARTS. 152. Installation Art.
ARTS. 171. Video Art.
ARTS. 172. Performance Art.
ARTS. 173. Interactive Portable Media and Cellphone Art.
ARTS. 180. Sources of Contemporary Art.
ARTS. 190. Social Collective Art Practice.
ARTS. 202. Drawing and Composition II.
ARTS. 203. Drawing and Composition III.
ARTS. 205. Life Drawing I.
ARTS. 206. Life Drawing II.
ARTS. 207. Drawing: Color Media I.
ARTS. 208. Drawing: Color Media II.
ARTS. 210. Printmaking II.
ARTS. 211. Printmaking III.
ARTS. 220. Photography II.
ARTS. 221. Photography III.
ARTS. 222. Digital Imaging II.
ARTS. 230. Painting II.
ARTS. 231. Painting III.
ARTS. 240. Ceramics II.
ARTS. 241. Concept and Clay: Composite Forms.
ARTS. 250. Sculpture II.
ARTS. 252. Advanced Installation Art.
ARTS. 271. Video Art II.
ARTS. 272. Performance Art II.
ARTS. 273. Interactive Portable Media and Cell Phone Art II.
ARTS. 285. Maymester Contemporary Art Blitz.
ARTS. 288. Selected Topics.
ARTS. 290. Directed Study: Senior Show and Contemporary Practices.

Asian Studies (HCA courses)
ASIA. 150. Writing Southeast Asia.
ASIA. 213W. Media Monsters in Contemporary Japan.

Classics (HCA courses)
CLAS. 150. The Greek Myths.
CLAS. 204. Archaic and Classical Greek Art and Architecture, 1000 to 400 B.C.E.
CLAS. 205. Late Classical Greek and Hellenistic Art and Architecture.
CLAS. 206. Roman Art and Architecture.
CLAS. 225. Humor, Ancient to Modern.
CLAS. 240. The Trojan War in History, Art, and Literature.
CLAS. 243. Alexander the Great.
CLAS. 295. Periclean Athens.
CLAS. 295W. Periclean Athens.
CLAS. 296W. Augustan Rome.

Communication of Science and Technology (HCA courses)
CSET. 201. Science Communication Tools and Techniques.

Communication Studies (HCA courses)
CMST. 100. Fundamentals of Public Speaking.
CMST. 200. Argumentation and Debate.
CMST. 201. Persuasion.
CMST. 204. Organizational and Managerial Communication.
CMST. 210. Rhetoric and Civic Life.
CMST. 222. The Rhetorical Tradition.
CMST. 241. Rhetoric of Mass Media.
CMST. 243. Cultural Rhetorics of Film.
CMST. 244. Politics and Mass Media.
CMST. 254. Methods of Rhetorical Analysis.
CMST. 254W. Methods of Rhetorical Analysis.

English (HCA courses)
ENGL. 102W. Literature and Analytical Thinking.
ENGL. 104W. Prose Fiction: Forms and Techniques.
ENGL. 105W. Drama: Forms and Techniques.
ENGL. 116W. Introduction to Poetry.
ENGL. 117W. Introduction to Literary Criticism.
ENGL. 118W. Introduction to Literary and Cultural Analysis.
ENGL. 120W. Intermediate Composition.
ENGL. 122. Beginning Fiction Workshop.
ENGL. 123. Beginning Poetry Workshop.
ENGL. 200. Intermediate Nonfiction Writing.
ENGL. 201. Advanced Nonfiction Writing.
ENGL. 202. Literature and the Craft of Writing.
ENGL. 204. Intermediate Fiction Workshop.
ENGL. 205. Advanced Fiction Workshop.
ENGL. 206. Intermediate Poetry Workshop.
ENGL. 207. Advanced Poetry Workshop.
ENGL. 208a. Representative British Writers.
ENGL. 208b. Representative British Writers.
ENGL. 209a. Shakespeare.
ENGL. 209b. Shakespeare.
ENGL. 210. Shakespeare: Representative Selections.
ENGL. 210W. Shakespeare: Representative Selections.
ENGL. 212. Southern Literature.
ENGL. 214a. Literature and Intellectual History.
ENGL. 214b. Literature and Intellectual History.
ENGL. 219. Anglo-Saxon Language and Literature.
ENGL. 220. Chaucer.
ENGL. 221. Medieval Literature.
ENGL. 230. The Eighteenth-Century English Novel.
ENGL. 231. The Nineteenth-Century English Novel.
ENGL. 232a. Twentieth-Century American Novel.
ENGL. 232b. Twentieth-Century American Novel.
ENGL. 233. The Modern British Novel.
ENGL. 235. Contemporary British Literature.
ENGL. 236. World Literature, Classical.
ENGL. 236W. World Literature, Classical.
ENGL. 237. World Literature, Modern.
ENGL. 237W. World Literature, Modern.
ENGL. 240. The History of the English Language.

ENGL. 241. Introduction to English Linguistics.
ENGL. 244. Critical Theory.
ENGL. 245. Literature and the Environment.
ENGL. 247. Advanced Poetry.
ENGL. 248. Sixteenth Century.
ENGL. 249. Seventeenth-Century Literature.
ENGL. 250. English Renaissance: The Drama.
ENGL. 251. Milton.
ENGL. 252a. Restoration and the Eighteenth Century.
ENGL. 252b. Restoration and the Eighteenth Century.
ENGL. 254a. The Romantic Period.
ENGL. 254b. The Romantic Period.
ENGL. 255. The Victorian Period.
ENGL. 256. Modern British and American Poetry: Yeats to Auden.
ENGL. 258. Poetry Since World War II.
ENGL. 259. Digital Media.
ENGL. 260. Nineteenth-Century American Women Writers.
ENGL. 262. Literature and Law.
ENGL. 262W. Literature and Law.
ENGL. 264. Modern Irish Literature.
ENGL. 265. Film and Modernism.
ENGL. 266. Nineteenth-Century American Literature.
ENGL. 269. Special Topics in Film.
ENGL. 272. Movements in Literature.
ENGL. 272W. Movements in Literature.
ENGL. 273. Problems in Literature.
ENGL. 273W. Problems in Literature.
ENGL. 274. Major Figures in Literature.
ENGL. 274W. Major Figures in Literature.
ENGL. 278. Colonial and Post-Colonial Literature.
ENGL. 278W. Colonial and Post-Colonial Literature.
ENGL. 282. The Bible in Literature.
ENGL. 283. Jewish American Literature.
ENGL. 288. Special Topics in English and American Literature.
ENGL. 288W. Special Topics in English and American Literature.
ENGL. 291. Special Topics in Creative Writing.

Film Studies (HCA courses)
FILM. 125. Introduction to the Study of Film.
FILM. 211. History of World Cinema.
FILM. 227W. Screenwriting.
FILM. 275W. Advanced Screenwriting.

French (HCA courses)
FREN. 205. Medical French in Intercultural Contexts.
FREN. 211. Texts and Contexts: Middle Ages to the Enlightenment.
FREN. 212. Texts and Contexts: Revolution to the Present.
FREN. 219. Contemporary Francophone Press.
FREN. 224. Art and Literature of the Nineteenth Century.
FREN. 225. Art and Literature of the Twentieth Century.
FREN. 234. Medieval French Literature.
FREN. 237. The Early Modern Novel.
FREN. 238. The Twentieth-Century Novel.
FREN. 241. Emile Zola: From Naturalist Novels to Social Activism.
FREN. 251. Provence and the French Novel.
FREN. 253. Literature of the Fantastic.
FREN. 256. French Intellectual History.
FREN. 260. Enlightenment and Revolution.
FREN. 261. Age of Louis XIV.
FREN. 265. From Romanticism to Symbolism.
FREN. 267. Twentieth-Century French Literature.
FREN. 271. French and Italian Avant-garde.

German (HCA courses)
GER. 172. Borders and Crossings: German Literature and Culture from Romanticism to the Present.
GER. 182. War on Screen.
GER. 223. From Language to Literature.
GER. 269. Writing under Censorship.
GER. 271. Women at the Margins: German-Jewish Women Writers.
GER. 274. Who Am I? German Autobiographies.
GER. 275. Art and Rebellion: Literary Experiment in the 1960s and 1970s.
GER. 278. Dreams in Literature.

Greek (HCA courses)
GRK. 210. The Greek Orators.
GRK. 212. The Greek Historians.
GRK. 215. The Greek Tragedians.
GRK. 216. Readings in Plato and Aristotle.
GRK. 218. Greek Lyric Poetry.
GRK. 240. Early Christian Writers.
GRK. 294. Special Topics in Greek Literature.

History (HCA courses)
HIST. 158. Crime and Punishment in Early Modern Europe 1400-1800 CE.
HIST. 176. History of Christian Traditions.
HIST. 222. Medieval and Renaissance Italy, 1000-1700.
HIST. 238. Shakespeare's Histories and History.
HIST. 239a. The Real Tudors.
HIST. 275a. American Intellectual History since 1865.
HIST. 286g. Weimar Germany: Modernism and Modernity, 1918-1933.
HIST. 287a. History, Trauma, and Memory.
HIST. 288a. Religion, Culture, and Commerce: The World Economy in Historical Perspective.
HIST. 288e. The Art of Empire.
HIST. 289a. Revolutionary England, 1603-1710.
HIST. 289d. Religion and the Occult in Early Modern Europe.

History of Art (HCA courses)
HART. 110. History of Western Art I.
HART. 111. History of Western Art II.
HART. 112. History of Western Architecture.
HART. 206. Portraits in Late Antiquity.
HART. 207. Religious Art of the Roman Empire, 100-500 CE.
HART. 208. Art and Empire from Constantine to Justinian.
HART. 210. Early Christian and Byzantine Art.
HART. 211. Medieval Art.
HART. 213W. The Court of Burgundy.
HART. 214. Fifteenth-Century Northern European Art.
HART. 217. Early Renaissance Florence.
HART. 217W. Early Renaissance Florence.
HART. 218. Italian Art to 1500.
HART. 219. Italian Renaissance Art after 1500.
HART. 220. Michelangelo's Life and Works.
HART. 220W. Michelangelo's Life and Works.
HART. 221. Seventeenth-Century Art.
HART. 222. British Art: Tudor to Victorian.
HART. 223. Twentieth-Century British Art.
HART. 224. Eighteenth-Century Art.
HART. 226. Neoclassicism and Romanticism.
HART. 229. Nineteenth-Century Architecture: Theory and Practice.
HART. 231. Twentieth-Century European Art.
HART. 232. Modern Architecture.
HART. 233. History of Photography.
HART. 234. Twentieth-Century Sculpture.
HART. 235. Modern Art and Architecture in Paris.
HART. 237. History of Spanish Art up to the Seventeenth Century.
HART. 238. History of Spanish Art from the Seventeenth Century to the Present.
HART. 251. East Asian Architecture and Gardens.
HART. 252. Arts of China.
HART. 253. Arts of Japan.
HART. 255. Greek Art and Architecture.
HART. 260W. Ancient Landscapes.
HART. 262W. Gender and Sexuality in Greek Art.
HART. 264. Greek Sculpture.
HART. 265. Greek Vases and Society.
HART. 266. Cities of the Roman East.
HART. 268. Art and Architecture of Ancient Egypt.
HART. 280W. Exhibiting Historical Art.
HART. 295. Advanced Seminar in History of Art.

Honors (HCA courses)
HONS. 181. College Honors Seminar in the Humanities and Creative Arts.

Italian (HCA courses)
ITA. 220. Introduction to Italian Literature.
ITA. 231. Dante's *Divine Comedy.*
ITA. 232. Literature from the Middle Ages to the Renaissance.
ITA. 233. Baroque, Illuminismo, and Romanticism in Italy.
ITA. 235. Twentieth-Century Literature: Beauty and Chaos.
ITA. 241. Contemporary Italian Cinema.
ITA. 250. *Famous Women* by Boccaccio.

Jewish Studies (HCA courses)
JS. 122. Classical Judaism: Jews in Antiquity.
JS. 136W. Imagining the Alien: Jewish Science Fiction.
JS. 248. Jewish Storytelling.
JS. 248W. Jewish Storytelling.
JS. 250. Is G–d Guilty? The Problem of Evil in Judaism.
JS. 253W. Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors.
JS. 255. Zionism: Politics, Religion, and Ethnicity.

Latin (HCA courses)
LAT. 201. Catullus.
LAT. 202. Ovid.
LAT. 203. The Lyric Poetry of Horace.
LAT. 204. Latin Elegy.
LAT. 205. Latin Letters.
LAT. 206. Cicero and the Humanistic Tradition.
LAT. 212. Roman Comedy.
LAT. 215. The Roman Historians.
LAT. 216. Tacitus.
LAT. 217. Suetonius.
LAT. 218. The Writings of Caesar.
LAT. 220. Vergil: *The Aeneid.*
LAT. 260. Early Christian Writers.
LAT. 264. Roman Satire.
LAT. 267. Neronian Writers.
LAT. 268. Lucretius: *De Rerum Natura.*
LAT. 294. Special Topics in Latin Literature.

Latino and Latina Studies (HCA courses)
LATS. 280. Latino and Latina Studies Seminar.

Medicine, Health, and Society (HCA courses)
MHS. 205W. Medicine and Literature.
MHS. 220. Narrative and Medicine: Stories of Illness and the Doctor-Patient Relationship.
MHS. 248. Medical Humanities.

Music Literature and History (HCA courses)
MUSL. 103. Musical Theatre in America: A Cultural History.
MUSL. 121W. Music in Western Culture.
MUSL. 140. Introduction to Music Literature.
MUSL. 141. Survey of Music Literature.
MUSL. 143. The Concerto.
MUSL. 144. The Symphony.
MUSL. 145. Survey of Choral Music.
MUSL. 153. History of Rock Music.
MUSL. 154. Music and the Fall of Segregation.
MUSL. 183. Music, the Arts, and Ideas.
MUSL. 184. Love and Death in Music.
MUSL. 185. Ethics and Music.
MUSL. 219. The Bible and Music.
MUSL. 221a. Opera in the 17th and 18th Centuries.
MUSL. 221b. Opera in the 19th Century.
MUSL. 222. Mahler Symphonies: Songs of Irony.
MUSL. 223. Music in the Age of Beethoven and Schubert.
MUSL. 224. Haydn and Mozart.
MUSL. 225. Brahms and the Anxiety of Influence.
MUSL. 226. The String Quartet.
MUSL. 227. Music in the Age of Revolution, 1789-1848.
MUSL. 228. J.S. Bach: Learned Musician & Virtual Traveler.
MUSL. 229. Robert Schumann and the Romantic Sensibility.
MUSL. 239. Music of the 20th and 21st Centuries.
MUSL. 242. Music of the Middle Ages and Renaissance.
MUSL. 243. Music of the Baroque and Classic Eras.
MUSL. 244. Music of the Romantic and Modern Eras.
MUSL. 245. Art Music of the United States after 1900.
MUSL. 253. Women and Rock Music.
MUSL. 265. Music City Museums and Memorabilia: Popular Music and Tourism.

Philosophy (HCA courses)
PHIL. 100. Introduction to Philosophy.
PHIL. 100W. Introduction to Philosophy.
PHIL. 120. The Meaning of Life.
PHIL. 120W. The Meaning of Life.
PHIL. 210. Ancient Philosophy.
PHIL. 212. Modern Philosophy.
PHIL. 213. Contemporary Philosophy.
PHIL. 216. Philosophy of Knowledge.
PHIL. 217. Metaphysics.
PHIL. 218. Hellenistic and Late Ancient Philosophy.
PHIL. 220. Immanuel Kant.
PHIL. 224. Existential Philosophy.
PHIL. 226. Phenomenology.
PHIL. 231. Philosophy of History.
PHIL. 232. Critical Theory.
PHIL. 234. Philosophy of Education.
PHIL. 238. Contemporary Ethical Theory.
PHIL. 240. History of Aesthetics.
PHIL. 241. Modernistic Aesthetics.
PHIL. 242. Philosophy of Religion.
PHIL. 243. Philosophy of Film.
PHIL. 247. Kierkegaard and Nietzsche.
PHIL. 248. Philosophy and Literature.
PHIL. 248W. Philosophy and Literature.
PHIL. 249. Philosophy of Music.
PHIL. 251. Topics in Aesthetics.
PHIL. 260. Twentieth-Century Continental Philosophy.
PHIL. 261. Jewish Philosophy.
PHIL. 274. Ethics and Animals.

Political Science (HCA courses)
PSCI. 103. Justice.
PSCI. 202. Ancient Political Thought.
PSCI. 203. History of Modern Political Philosophy.
PSCI. 205. Contemporary Political Theory.
PSCI. 207. Liberalism and Its Critics.
PSCI. 207W. Liberalism and Its Critics.
PSCI. 208. Law, Politics, and Justice.
PSCI. 253. Ethics and Public Policy.
PSCI. 257. The Politics of Capitalism.
PSCI. 258. Democratic Theory and Practice.
PSCI. 263. Religion and Politics.

Portuguese (HCA courses)
PORT. 205. Introduction to Luso-Brazilian Literature.
PORT. 232. Brazilian Literature through the Nineteenth Century.
PORT. 233. Modern Brazilian Literature.

Religious Studies (HCA courses)
RLST. 101. Encountering Religious Diversity.
RLST. 108. Themes in the Hebrew Bible.
RLST. 109. Themes in the New Testament.
RLST. 111W. The Gnostic Gospels.
RLST. 112. Introduction to Judaism.
RLST. 113. Introduction to Islam.
RLST. 140. Great Books of Literature and Religion.
RLST. 181. Myth and History in Religious Biography.
RLST. 210. Interpreting the Gospels.
RLST. 212. The Pauline Interpretation of Christianity.
RLST. 213. Ethics of the New Testament.
RLST. 216. Christianity in the Reformation Era.
RLST. 220W. Constructions of Jewish Identity in the Modern World.

RLST. 222. Jewish Ethics.
RLST. 225. Sexuality in the Hebrew Bible and the Ancient Near East.
RLST. 240. The Nature of Evil.
RLST. 246. Apophatic Mysticism and Culture.
RLST. 247. Daoist Tradition.
RLST. 251. Islamic Mysticism.
RLST. 278. Native American Religious Traditions.
RLST. 280W. Senior Seminar.

Russian (HCA courses)
RUSS. 221. Survey of Russian Literature in English Translation.
RUSS. 222. Survey of Russian Literature in English Translation.
RUSS. 233. *Crime and Punishment.*

Spanish (HCA courses)
SPAN. 203. Introduction to Spanish and Spanish American Literature.
SPAN. 205. The Way of Saint James.
SPAN. 230. Development of Lyric Poetry.
SPAN. 231. The Origins of Spanish Literature.
SPAN. 232. Literature of the Spanish Golden Age.
SPAN. 233. Spanish Literature from the Enlightenment to 1900.
SPAN. 234. Spanish Literature from 1900 to the Present.
SPAN. 235. Spanish American Literature from the Conquest to 1900.
SPAN. 236. Spanish American Literature from 1900 to the Present.
SPAN. 237. Contemporary Lyric Poetry.
SPAN. 239. Development of the Novel.
SPAN. 240. The Contemporary Novel.
SPAN. 246. *Don Quixote.*
SPAN. 247. Spanish-American Literature of the Boom Era.
SPAN. 251. Development of Drama.
SPAN. 256. Love and Honor in Medieval and Golden Age Literature.
SPAN. 258. Spanish Realism.
SPAN. 260. Development of the Short Story.
SPAN. 280. Undergraduate Seminar.
SPAN. 281. The Theory and Practice of Drama.
SPAN. 293. Contemporary Latin American Prose Fiction in English Translation.

Theatre (HCA courses)
THTR. 100. Fundamentals of Theatre.
THTR. 100W. Fundamentals of Theatre.
THTR. 110. Introduction to Theatrical Production.
THTR. 111. Fundamentals of Theatre Design.
THTR. 212. Elements of Basic Design: Scenery and Properties.
THTR. 213. Elements of Basic Design: Lighting and Sound.
THTR. 214. Elements of Basic Design: Costuming and Makeup.
THTR. 218. Management in the Theatre.
THTR. 219. Acting I.
THTR. 220. Acting II.
THTR. 223. Problems of Acting Style.
THTR. 225. Playwriting.
THTR. 230. Play Direction.
THTR. 231. Intermediate Play Direction.
THTR. 232. Shakespeare in the Theatre.
THTR. 261. Senior Seminar: Performance Ensemble.

Women's and Gender Studies (HCA courses)
WGS. 200. Women in Popular Culture.
WGS. 212. Lesbian, Gay, Bisexual, and Transgender Studies.
WGS. 249. Women and Humor in the Age of Television.
WGS. 252. Sex and Scandals in Literature.
WGS. 259. Reading and Writing Lives.
WGS. 259W. Reading and Writing Lives.
WGS. 261. Gender and Law in Classical Antiquity.
WGS. 261W. Gender and Law in Classical Antiquity.

International Cultures (INT)

African American and Diaspora Studies (INT courses)
AADS. 120. Diaspora Feminisms.
AADS. 140. Blacks in Latin America and the Caribbean.
AADS. 160. Black Migrations in the African Diaspora.
AADS. 165. Global Africa.
AADS. 190. Global Anti-Blackness and Black Power.
AADS. 205. Haiti: Freedom and Democracy.
AADS. 209. Black Paris – Paris Noir: The African Diaspora and the City of Light.
AADS. 220. Colonialism and After.
AADS. 269. African Diaspora Ethnography.
AADS. 275. Black Europe.

Anthropology (INT courses)
ANTH. 210. Culture and Power in Latin America.
ANTH. 212. Ancient Mesoamerican Civilizations.
ANTH. 213. The Archaeology of the Ancient Maya Civilization.
ANTH. 217. Old World Archaeology.
ANTH. 225. Social Movements.
ANTH. 232. The Anthropology of Globalization.
ANTH. 247. The Aztecs.
ANTH. 248. Ancient Andean Civilizations.
ANTH. 254. The Inca Empire.
ANTH. 269. Introduction to a Maya Language.
ANTH. 277. Conversational K'iche' Maya.
ANTH. 278. Advanced K'iche' Maya.
ANTH. 285. Readings in K'iche' Mayan.

Arabic (INT courses)
ARA. 210b. Elementary Arabic.
ARA. 220a. Intermediate Arabic.
ARA. 220b. Intermediate Arabic.
ARA. 230a. Advanced Arabic.
ARA. 230b. Advanced Arabic.
ARA. 240. Media Arabic.
ARA. 250. Arabic of the Qur'an and Other Classical Texts.

Asian Studies (INT courses)
ASIA. 200W. Fashioning the Self: Coming of Age and Asian Modernities.
ASIA. 211. Popular Culture in Modern Japan.
ASIA. 212. Explorations of Japanese Animation.
ASIA. 233. Self-Cultivation in Ancient China.
ASIA. 236. Inside China.
ASIA. 240. Current Japan-U.S. Relations.
ASIA. 250W. Hollywood Hanoi.
ASIA. 251. The Third World and Literature.

Catalan (INT courses)
CTLN. 102. Intensive Elementary Catalan.

Chinese (INT courses)
CHIN. 202. Elementary Chinese II.
CHIN. 211. Intermediate Chinese I.
CHIN. 212. Intermediate Chinese II.
CHIN. 225. Chinese for Heritage Learners I.
CHIN. 226. Chinese for Heritage Learners II.
CHIN. 241. Advanced Chinese I.
CHIN. 242. Advanced Chinese II.
CHIN. 251. Readings in Modern Chinese Media.
CHIN. 252. Readings in Modern Chinese Media.
CHIN. 253. Classical Chinese Literature and Philosophy.
CHIN. 254. Readings in Modern Literary Chinese.
CHIN. 255. Business Chinese I.
CHIN. 256. Business Chinese II.

Classics (INT courses)
CLAS. 130. Greek Civilization.
CLAS. 146. Roman Civilization.
CLAS. 207. History of the Ancient Near East.
CLAS. 208. History of Greece to Alexander the Great.
CLAS. 209. Greece and the Near East from Alexander to Theodosius.
CLAS. 212. History of the Roman Republic.
CLAS. 213. History of the Roman Empire.
CLAS. 223. From Late Antiquity to Islam.
CLAS. 226. Warfare in the Ancient Mediterranean.
CLAS. 231. Akkadian.
CLAS. 232. Akkadian.
CLAS. 236. Culture of the Ancient Near East.
CLAS. 238. The Amarna Age.

CLAS. 241. Uncovering Greek Religion: Cults, Festivals, and Sanctuaries in the Ancient World.
CLAS. 242. Archaeology, History, and Culture in Greece: Kenchreai Field School.
CLAS. 244. History and Art of Ancient Rome.
CLAS. 245. The Archaeology of Greek Sanctuaries.

Economics (INT courses)
ECON. 288. Development Economics.

English (INT courses)
ENGL. 271. Caribbean Literature.
ENGL. 276. Anglophone African Literature.

European Studies (INT courses)
EUS. 201. European Society and Culture.
EUS. 203. The Idea of Europe.
EUS. 208. Conspiracy Theories and Rumors in European and U.S. History.
EUS. 220. Religion and Politics in Modern Europe, 1648-Present.
EUS. 260. European Cities.

French (INT courses)
FREN. 101b. Elementary French.
FREN. 102. Accelerated Elementary French.
FREN. 103. Intermediate French.
FREN. 201W. French Composition and Grammar.
FREN. 203. Phonetics.
FREN. 204. French for Business.
FREN. 209. Contemporary France.
FREN. 210. French and Francophone Cinema.
FREN. 215. La Provence.
FREN. 226. Advanced French Grammar.
FREN. 239. The African Novel.
FREN. 266. The Beat Generation's French Connection.
FREN. 268. Understanding the Maghreb.

German (INT courses)
GER. 102. Elementary German II.
GER. 103. Intermediate German I.
GER. 104. Intermediate German II.
GER. 201W. Introduction to German Studies.
GER. 213. Conversation and Composition: Current Events.
GER. 214. Conversation and Composition: Contemporary Culture.
GER. 216. Business German.
GER. 220. Advanced Grammar.
GER. 221. German Culture and Literature.
GER. 222. German Culture and Literature.
GER. 235. German Romanticism.
GER. 237. Women and Modernity.
GER. 242. German Mystery Novels: From Romanticism to Kafka.
GER. 244. German Fairy Tales: From Brothers Grimm to Walt Disney.
GER. 248. German Lyric Poetry–Form and Function.
GER. 262. German Literature of the Middle Ages.
GER. 263. The Age of Goethe–Weimar 1775 to 1805.
GER. 264. Pleasures and Perils in Nineteenth-Century Theatre.
GER. 265. Revolutionizing Twentieth-Century Theatre.
GER. 266. Nineteenth-Century Prose.
GER. 267. The German Novel from Kafka to Grass.
GER. 270. German Cinema: Vampires, Victims, and Vamps.
GER. 276. Tales of Travel in Modern German Culture.
GER. 280. Murder and Mayhem: the Sturm und Drang.

Greek (INT courses)
GRK. 202. Beginning Greek II.
GRK. 203. Intermediate Greek I: Classical and Koiné Greek.
GRK. 204. Intermediate Greek II: Homer's *Iliad*.

Hebrew (INT courses)
HEBR. 111b. Elementary Hebrew.
HEBR. 113a. Intermediate Hebrew.
HEBR. 113b. Intermediate Hebrew.
HEBR. 201. Advanced Hebrew Grammar.
HEBR. 202W. Advanced Hebrew Composition.

History (INT courses)
HIST. 105. East Asia since 1800.
HIST. 106. Premodern China.
HIST. 107. China from Empire to the People's Republic.
HIST. 108. Premodern Japan.
HIST. 109. Modern Japan.
HIST. 116. Modern South Asia.
HIST. 119. A History of Islam.
HIST. 120. The Arab Spring.
HIST. 127. Sub-Saharan Africa: 1400-1800.
HIST. 128. Africa since 1800: The Revolutionary Years.
HIST. 135. Western Civilization to 1700.
HIST. 136. Western Civilization since 1700.
HIST. 137. Colonial Latin America.
HIST. 138. Modern Latin America.
HIST. 147. History of Geographical Exploration.
HIST. 170. Western Military History to 1815.
HIST. 172. World War II.
HIST. 188a. The Body in Modern Japanese Culture.
HIST. 202. Themes in Modern Chinese History, 1966-1989.
HIST. 203. Chinese Thought.
HIST. 204. Crisis Simulation in East Asia.
HIST. 205. Play and Pleasure in Early Modern Japan.
HIST. 206. Post-WWII Japan.
HIST. 209. Russia: Old Regime to Revolution.
HIST. 210. Russia: The U.S.S.R. and Afterward.
HIST. 211a. The Mughal World.
HIST. 211b. Religion and Politics in South Asia.
HIST. 212a. India and the Indian Ocean.
HIST. 213. Muhammad and Early Islam.
HIST. 216. Medicine in Islam.
HIST. 219. Last Empire of Islam.
HIST. 223. Medieval Europe, 1000-1350.
HIST. 225. Reformation Europe.
HIST. 226. Revolutionary Europe, 1789-1815.
HIST. 227. Nineteenth-Century Europe.
HIST. 228. Europe, 1900-1945.
HIST. 229. Europe since 1945.
HIST. 230. Twentieth-Century Germany.
HIST. 231. France: Renaissance to Revolution.
HIST. 234. Modern France.
HIST. 241. Victorian England.
HIST. 245. Reform, Crisis, and Independence in Latin America, 1700-1820.
HIST. 246. Colonial Mexico.
HIST. 247. Modern Mexico.
HIST. 248. Central America.
HIST. 249. Brazilian Civilization.
HIST. 251. Reform and Revolution in Latin America.
HIST. 253a. Latin America and the United States.
HIST. 254a. Race and Nation in Latin America.
HIST. 257. Caribbean History, 1492-1983.
HIST. 268. Black New York.
HIST. 286b. U.S. and Caribbean Encounters.
HIST. 286c. Tokyo: History and Image.
HIST. 286d. Pirates of the Caribbean.
HIST. 286e. Christianity in China.
HIST. 287c. Cities of Europe and the Middle East.
HIST. 287g. Making of Modern Paris.
HIST. 288b. Poverty, Economy, and Society in Sub-Saharan Africa.
HIST. 288c. Muslims, Christians, and Jews in Medieval Spain.
HIST. 288d. Images of India.
HIST. 288g. Culture of the Sixties in Europe and the U.S..

History of Art (INT courses)
HART. 120. Arts of East Asia.
HART. 122. History of Asian Architecture.
HART. 125. Arts of South and Southeast Asia.
HART. 216. Raphael and the Renaissance.
HART. 230. Nineteenth-Century European Art.
HART. 246. Religion and politics in South and Southeast Asian Art.
HART. 247. Himalayan Art: Art of the Divine Abode.

HART. 248. The South Asian Temple.
HART. 249. The Arts of China during the Liao-Song Period.

Honors (INT courses)
HONS. 186. College Honors Seminar in International Cultures.

Interdisciplinary Studies (INT courses)
INDS. 270a. Global Citizenship and Service.
INDS. 270c. Seminar in Global Citizenship and Service.

Italian (INT courses)
ITA. 101b. Elementary Italian.
ITA. 102. Intensive Elementary Italian.
ITA. 200. Italian Journeys.
ITA. 201W. Grammar and Composition.
ITA. 214. Conversation.
ITA. 230. Italian Civilization.
ITA. 240. Classic Italian Cinema.

Japanese (INT courses)
JAPN. 202. Beginning Modern Japanese II.
JAPN. 211. Second-Year Modern Japanese I.
JAPN. 212. Second-Year Modern Japanese II.
JAPN. 241. Third-Year Japanese I.
JAPN. 242. Third-Year Japanese II.
JAPN. 251. Fourth-Year Japanese I.
JAPN. 252. Fourth-Year Japanese II.

Jewish Studies (INT courses)
JS. 120. Islam and the Jews.
JS. 123. Jews in the Medieval World.
JS. 125. Modern Israel.
JS. 156. The Holocaust.
JS. 158. The Jewish Diaspora.
JS. 180. Introduction to Jewish Studies.
JS. 180W. Introduction to Jewish Studies.
JS. 222. Jews in Egypt.
JS. 233. Issues in Rabbinic Literature.
JS. 234. Reading Across Boundaries: Jewish and Non-Jewish Texts.
JS. 235W. Hebrew Literature in Translation.
JS. 237. Coming of Age in Jewish Literature and Film.
JS. 237W. Coming of Age in Jewish Literature and Film.
JS. 238. Jewish Language and Paleography.
JS. 249. Jewish Philosophy after Auschwitz.
JS. 256. Power and Diplomacy in the Modern Middle East.

Latin (INT courses)
LAT. 100. Intensive Elementary Latin.
LAT. 102. Beginning Latin II.
LAT. 103. Intermediate Latin: Prose.
LAT. 104. Intermediate Latin: Poetry.

Latin American Studies (INT courses)
LAS. 201. Introduction to Latin America.
LAS. 202. Introduction to Brazil.
LAS. 231. Music of Protest and Social Change in Latin America.

Music Literature and History (INT courses)
MUSL. 122. Music as Global Culture.
MUSL. 160. World Music.
MUSL. 171. African Music.
MUSL. 250. Music in Latin America and the Caribbean.
MUSL. 252. Afropop.

Philosophy (INT courses)
PHIL. 103. Introduction to Asian Philosophy.
PHIL. 103W. Introduction to Asian Philosophy.
PHIL. 203. Advanced Asian Philosophy.
PHIL. 211. Medieval Philosophy.
PHIL. 228. Nineteenth-Century Philosophy.
PHIL. 257. Early Modern Political Philosophy.
PHIL. 262. Islamic Philosophy.

Political Science (INT courses)
PSCI. 210. West European Politics.
PSCI. 211. The European Union.
PSCI. 216. The Chinese Political System.
PSCI. 217. Latin American Politics.
PSCI. 228. International Politics of Latin America.
PSCI. 235. Political Islam.
PSCI. 251. The Politics of U.S. and Global Immigration.
PSCI. 264W. Global Feminisms.

Portuguese (INT courses)
PORT. 102. Intensive Elementary Portuguese.
PORT. 200. Intermediate Portuguese.
PORT. 201. Portuguese Composition and Conversation.
PORT. 203. Brazilian Pop Culture.

Religious Studies (INT courses)
RLST. 130. Introduction to Hindu and Buddhist Traditions.
RLST. 135. Religions in China.
RLST. 136. Religions of Japan.
RLST. 137. Religions of Tibet and the Himalaya.
RLST. 206. Global Interpretations of Christian Scriptures.
RLST. 226. Ancient Goddesses.
RLST. 238. Marriage in the Ancient Near East and the Hebrew Bible.
RLST. 244. Buddhist Traditions.
RLST. 249. Zen Buddhism.
RLST. 250. Classical Philosophies of India.
RLST. 252. Reformers of the Islamic Tradition.
RLST. 253. East Asian Buddhism.
RLST. 254. The Qur'an and Its Interpreters.
RLST. 262. Culture, Religion, and Politics of the Arab World.
RLST. 264. Foundations of Hindu Traditions.
RLST. 265. Mythologies and Epics of South Asia.
RLST. 266. Devotional Traditions of South Asia: Hindu, Muslim, Sikh.
RLST. 269. Sacred Space in the Tibetan World.
RLST. 270. Buddhism and the State.
RLST. 275. Chinese Religions through Stories.

Russian (INT courses)
RUSS. 102. First-Year Russian.
RUSS. 171. A Tale of Three Cities.
RUSS. 172. Russian Culture in the Twentieth Century.
RUSS. 183. Russian Fairy Tales.
RUSS. 190. Russian and Soviet Short Story.
RUSS. 203. Second-Year Russian.
RUSS. 204. Second-Year Russian.
RUSS. 223. Composition and Conversation.
RUSS. 224. Composition and Conversation.
RUSS. 231. Jews in Russian Culture: Survival and Identity.
RUSS. 232. The Evil Empire: Stalin's Russia.
RUSS. 234. The Russian Cinema.
RUSS. 238. Dostoevsky's Major Novels: Philosophy and Aesthetics.
RUSS. 240. Terrors and Terrorists: Russian Literature of the Irrational and the Absurd.
RUSS. 250. Socio-Political and Cultural Developments in Post-Soviet Regions.

Sociology (INT courses)
SOC. 220. Population and Society.
SOC. 239. Women, Gender, and Globalization.
SOC. 270. Human Ecology and Society.
SOC. 277. Contemporary Latin America.
SOC. 279. Contemporary Mexican Society.

Spanish (INT courses)
SPAN. 102. Elementary Spanish II.
SPAN. 103. Intensive Elementary Spanish.
SPAN. 104. Intermediate Spanish.
SPAN. 200. Intensive Spanish.
SPAN. 201W. Intermediate Spanish Writing.
SPAN. 202. Spanish for Oral Communication Through Cultural Topics.
SPAN. 204. Introduction to Hispanic Cultural Studies.
SPAN. 206. Spanish for Business and Economics.
SPAN. 207. Advanced Conversation.
SPAN. 208. Advanced Conversation Through Cultural Issues in Film.
SPAN. 209. The Spanish Language.

SPAN. 210. Spanish for the Legal Profession.
SPAN. 211. Spanish for the Medical Profession.
SPAN. 221. Spanish Civilization.
SPAN. 223. Spanish American Civilization.
SPAN. 226. Film and Recent Cultural Trends in Spain.

Theatre (INT courses)
THTR. 201. The Development of Drama and Theatre I.
THTR. 202W. The Development of Drama and Theatre II.

Women's and Gender Studies (INT courses)
WGS. 281. Globalization and Policy-Making.

Mathematics and Natural Sciences (MNS)

Anthropology (MNS courses)
ANTH. 103. Introduction to Biological Anthropology.
ANTH. 270. Human Osteology.
ANTH. 272. Genetic Anthropology Lab Techniques.
ANTH. 273. Human Evolutionary Genetics.
ANTH. 274. Health and Disease in Ancient Populations.
ANTH. 280. Introduction to Geographic Information Systems and Remote Sensing.

Astronomy (MNS courses)
ASTR. 102. Introductory Astronomy: Stars and Galaxies.
ASTR. 122. Introduction to Observational Astronomy.
ASTR. 201. The Solar System.
ASTR. 205. Principles of Astrophysics.
ASTR. 252. Stellar Astrophysics.
ASTR. 253. Galactic Astrophysics.
ASTR. 254. Structure Formation in the Universe.
ASTR. 260. General Relativity and Cosmology.

Biological Sciences (MNS courses)
BSCI. 100. Biology Today.
BSCI. 105. Human Biology.
BSCI. 110a. Introduction to Biological Sciences.
BSCI. 110b. Introduction to Biological Sciences.
BSCI. 118. Green Earth: The Biodiversity and Evolution of Plants.
BSCI. 201. Introduction to Cell Biology.
BSCI. 205. Evolution.
BSCI. 210. Principles of Genetics.
BSCI. 218. Introduction to Plant Biology.
BSCI. 219. Introduction to Zoology.
BSCI. 220. Biochemistry.
BSCI. 230. Biological Clocks.
BSCI. 233. Conservation Biology.
BSCI. 234. Microbiology.
BSCI. 236. Parasitology.
BSCI. 238. Ecology.
BSCI. 239. Behavioral Ecology.
BSCI. 243. Genetics of Disease.
BSCI. 245. Biology of Cancer.
BSCI. 247. Molecular Evolution.
BSCI. 252. Cellular Neurobiology.
BSCI. 254. Neurobiology of Behavior.
BSCI. 256. Molecules of the Brain.
BSCI. 265. Nucleic Acid Transactions.
BSCI. 266. Advanced Molecular Genetics.
BSCI. 270. Statistical Methods in Biology.
BSCI. 272. Genome Science.

Chemistry (MNS courses)
CHEM. 101a. Introductory Chemistry.
CHEM. 101b. Introductory Chemistry.
CHEM. 102a. General Chemistry.
CHEM. 102b. General Chemistry.
CHEM. 202. Introduction to Bioinorganic Chemistry.
CHEM. 203. Inorganic Chemistry.
CHEM. 207. Introduction to Organometallic Chemistry.
CHEM. 210. Introduction to Analytical Chemistry.
CHEM. 211. Instrumental Analytical Chemistry.
CHEM. 218a. Organic Chemistry for Advanced Placement Students.
CHEM. 218b. Organic Chemistry for Advanced Placement Students.
CHEM. 220a. Organic Chemistry.
CHEM. 220b. Organic Chemistry.
CHEM. 220c. Organic Chemistry Structure and Mechanism.
CHEM. 222. Physical Organic Chemistry.
CHEM. 223. Advanced Organic Reactions.
CHEM. 224. Bioorganic Chemistry.
CHEM. 225. Spectroscopic Identification of Organic Compounds.
CHEM. 226. Drug Design and Development.
CHEM. 227W. Forensic Analytical Chemistry.
CHEM. 230. Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics.
CHEM. 231. Biophysical Chemistry: Thermodynamics in Chemical and Biological Systems.
CHEM. 235. Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modifications.
CHEM. 240. Introduction to Nanochemistry.

Earth and Environmental Sciences (MNS courses)
EES. 101. The Dynamic Earth: Introduction to Geological Sciences.
EES. 103. Oceanography.
EES. 107. Volcanoes: Impacts on Earth and Society.
EES. 114. Ecology, Evolution, and Climates through Time.
EES. 201. Global Climate Change.
EES. 202. Earth Systems through Time.
EES. 210. Field Methods.
EES. 220. Life Through Time.
EES. 225. Earth Materials.
EES. 226. Petrology.
EES. 230. Sedimentology.
EES. 240. Structural Geology and Rock Mechanics.
EES. 255. Transport Processes in Earth and Environmental Systems.
EES. 260. Geochemistry.
EES. 261. Geomorphology.
EES. 268. Paleoclimates.
EES. 275. Sustainable Systems Science.
EES. 282. Paleoecological Methods.
EES. 285. Volcanic Processes.

Honors (MNS courses)
HONS. 185. College Honors Seminar in Mathematics and Natural Science.

Mathematics (MNS courses)
MATH. 127b. Probability and Statistical Inference.
MATH. 140. Survey of Calculus.
MATH. 150a. Single-Variable Calculus I.
MATH. 150b. Single-Variable Calculus II.
MATH. 155a. Accelerated Single-Variable Calculus I.
MATH. 155b. Accelerated Single-Variable Calculus II.
MATH. 170. Single-Variable Calculus III.
MATH. 175. Multivariable Calculus.
MATH. 194. Methods of Linear Algebra.
MATH. 198. Methods of Ordinary Differential Equations.
MATH. 200. Intensive Problem Solving and Exposition.
MATH. 204. Linear Algebra.
MATH. 205a. Multivariable Calculus and Linear Algebra.
MATH. 205b. Multivariable Calculus and Linear Algebra.
MATH. 208. Ordinary Differential Equations.
MATH. 215. Discrete Mathematics.
MATH. 218. Introduction to Probability and Mathematical Statistics.
MATH. 219. Introduction to Applied Statistics.
MATH. 221. Theory of Numbers.
MATH. 223. Abstract Algebra.
MATH. 226. Introduction to Numerical Mathematics.
MATH. 229. Advanced Engineering Mathematics.
MATH. 234. Introduction to Partial Differential Equations.
MATH. 240. Transformation Geometry.
MATH. 242. Introduction to Topology.
MATH. 243. Differentiable Manifolds.
MATH. 246a. Introduction to Actuarial Mathematics.
MATH. 246b. Actuarial Models.

MATH. 247. Probability.
MATH. 248. Mathematical Statistics.
MATH. 249a. Financial Stochastic Processes.
MATH. 249b. Evaluation of Actuarial Models.
MATH. 250. Introduction to Mathematical Logic.
MATH. 252. History of Mathematics.
MATH. 253. Error-Correcting Codes and Cryptography.
MATH. 256. Mathematical Modeling in Economics.
MATH. 259. Advanced Calculus.
MATH. 260. Introduction to Analysis.
MATH. 261. Complex Variables.
MATH. 262. Mathematical Modeling in Biology and Medicine.
MATH. 270. Differential Topology.
MATH. 272a. Topology.
MATH. 272b. Topology.
MATH. 274. Combinatorics.
MATH. 275. Graph Theory.
MATH. 280. Set Theory.
MATH. 283a. Modern Algebra.
MATH. 283b. Modern Algebra.
MATH. 284. Lattice Theory and the Theory of Ordered Sets.
MATH. 286. Numerical Analysis.
MATH. 287. Nonlinear Optimization.
MATH. 288. Linear Optimization.
MATH. 292. Methods of Mathematical Physics.
MATH. 294. Partial Differential Equations.

Neuroscience (MNS courses)
NSC. 201. Neuroscience.
NSC. 235. Biological Basis of Mental Disorders.
NSC. 255. Integrative Neuroscience.
NSC. 260. Psychopharmacology.
NSC. 269. Developmental Neuroscience.
NSC. 272. Structure and Function of the Cerebral Cortex.
NSC. 274. Neuroanatomy.

Philosophy (MNS courses)
PHIL. 102. General Logic.
PHIL. 202. Formal Logic and Its Applications.

Physics (MNS courses)
PHYS. 110. Introductory Physics.
PHYS. 113a. Introductory Physics for the Life Sciences I.
PHYS. 113b. Introductory Physics for the Life Sciences II.
PHYS. 116a. General Physics I.
PHYS. 116b. General Physics II.
PHYS. 121a. Principles of Physics I.
PHYS. 121b. Principles of Physics II.
PHYS. 221. Classical and Modern Optics.
PHYS. 223. Thermal and Statistical Physics.
PHYS. 223c. Computational Thermal and Statistical Physics.
PHYS. 225. Concepts and Applications of Quantum Physics.
PHYS. 225W. Concepts and Applications of Quantum Physics.
PHYS. 226. Modern Physics.
PHYS. 226W. Modern Physics.
PHYS. 227a. Classical Mechanics I.
PHYS. 227b. Classical Mechanics II.
PHYS. 229a. Electricity, Magnetism, and Electrodynamics I.
PHYS. 229b. Electricity, Magnetism, and Electrodynamics II.
PHYS. 243. Health Physics.
PHYS. 251a. Advanced Quantum Mechanics I.
PHYS. 251b. Advanced Quantum Mechanics II.
PHYS. 254. Physics of Condensed Matter.
PHYS. 255. Introduction to Particle Physics.
PHYS. 257. Computational Physics.
PHYS. 266. Experimental Nanoscale Fabrication and Characterization.
PHYS. 285. Radiation Detectors and Measurements.

Psychology (MNS courses)
PSY. 209. Quantitative Methods.
PSY. 214. Perception.
PSY. 216. Movement.
PSY. 232. Mind and Brain.
PSY. 236. The Visual System.
PSY. 253. Human Memory.

Perspectives (P)

African American and Diaspora Studies (P courses)
AADS. 101. Introduction to African American and Diaspora Studies.
AADS. 102. Making of the African Diaspora.
AADS. 150. Reel to Real: Film Aesthetics and Representation.
AADS. 203W. Blacks in the Military.

American Studies (P courses)
AMER. 201. Serving and Learning.

Anthropology (P courses)
ANTH. 205. Race in the Americas.
ANTH. 209. Global Wealth and Poverty.
ANTH. 215. The Collapse of Civilizations.
ANTH. 241. Biology and Culture of Race.
ANTH. 250. Anthropology of Healing.
ANTH. 260. Medicine, Culture, and the Body.
ANTH. 283. Ethics in Anthropology, Archaeology, and Development.

Asian Studies (P courses)
ASIA. 230. Chinese Medicine.

Astronomy (P courses)
ASTR. 203. Theories of the Universe.

Classics (P courses)
CLAS. 224. The Ancient Origins of Religious Conflict in the Middle East.

Communication Studies (P courses)
CMST. 223. Values in Modern Communication.
CMST. 235. Communicating Gender.

Earth and Environmental Sciences (P courses)
EES. 108. Earth and Atmosphere.
EES. 205. Science, Risk, and Policy.

English (P courses)
ENGL. 242. Science Fiction.
ENGL. 242W. Science Fiction.
ENGL. 243. Literature, Science, and Technology.
ENGL. 243W. Literature, Science, and Technology.
ENGL. 246. Feminist Theory.
ENGL. 275. Latino-American Literature.
ENGL. 277. Asian American Literature.
ENGL. 277W. Asian American Literature.
ENGL. 279. Ethnic American Literature.
ENGL. 279W. Ethnic American Literature.

Film Studies (P courses)
FILM. 201. Film Theory.

French (P courses)
FREN. 214. Advanced Conversational French.
FREN. 218. The Contemporary Press and Media.
FREN. 222. Introduction to Francophone Literature.
FREN. 232. The *Querelles des femmes.*
FREN. 240. From Carnival to the "Carnivalesque".
FREN. 252. Literature and Law.
FREN. 255. French Feminist Thought: Literary and Critical.
FREN. 258. The Struggle of Encounter: The Israeli-Palestinian Conflict in Literature.
FREN. 272. Adultery and Transgressions in Literature.

German (P courses)
GER. 238. Interconnections of Arts and Science: Goethe and the Natural World.
GER. 241. The Racial Imagination.
GER. 243. The Aesthetics of Violence: Terror, Crime, and Dread in German Literature.
GER. 273. Nazi Cinema: The Manipulation of Mass Culture.

History (P courses)
HIST. 148. The Darwinian Revolution.
HIST. 150. History of Modern Sciences and Society.
HIST. 151. The Scientific Revolution.
HIST. 153. Superhuman Civilization.
HIST. 183. Sexuality and Gender in the Western Tradition to 1700.
HIST. 184. Sexuality and Gender in the Western Tradition since 1700.
HIST. 187. Pornography and Prostitution in History.
HIST. 217. Islam and the Crusades.
HIST. 280. Modern Medicine.
HIST. 283. Medicine, Culture, and the Body.
HIST. 284a. Epidemics in History.
HIST. 285W. Science, Technology, and Modernity.
HIST. 288W. Blacks and Money.

History of Art (P courses)
HART. 270. History of Western Urbanism.

Honors (P courses)
HONS. 182. College Perspectives Honors Seminar.

Italian (P courses)
ITA. 238. City Fictions.
ITA. 242. Contemporary Italian Society and Culture.

Jewish Studies (P courses)
JS. 124. Perspectives in Modern Jewish History.
JS. 219. The New Testament in Its Jewish Contexts.
JS. 240. Modern Jewish Thought.
JS. 245. Major Themes in Jewish Studies.

Latin American Studies (P courses)
LAS. 260. Latin America, Latinos, and the United States.

Latino and Latina Studies (P courses)
LATS. 201. Introduction to Latino and Latina Studies.

Medicine, Health, and Society (P courses)
MHS. 170. Politics of Health.
MHS. 201. Fundamental Issues in Medicine, Health, and Society.
MHS. 202. Perspectives on Global Public Health.
MHS. 203. U.S. Public Health Ethics and Policy.
MHS. 204. Global Health and Social Justice.
MHS. 208. American Medicine and the World.
MHS. 210. Health Social Movements.
MHS. 212. War and the Body.
MHS. 225. Death and Dying in America.
MHS. 232. Masculinity and Men's Health.
MHS. 236. HIV/AIDS in the Global Community.
MHS. 252. Psychiatry, Culture, and Globalization.

Music Literature and History (P courses)
MUSL. 200. Women and Music.
MUSL. 201. Music, Gender, and Sexuality.
MUSL. 261. Music, Identity, and Diversity.

Philosophy (P courses)
PHIL. 105. Introduction to Ethics.
PHIL. 108. Introduction to Medical Ethics.
PHIL. 108W. Introduction to Medical Ethics.
PHIL. 110. Introduction to Business Ethics.
PHIL. 233W. Writing as Political Resistance.
PHIL. 235. Gender and Sexuality.
PHIL. 239. Moral Problems.
PHIL. 239W. Moral Problems.
PHIL. 244. Philosophy and the Natural Sciences.
PHIL. 245. Humanity, Evolution, and God.
PHIL. 252. Political and Social Philosophy.
PHIL. 258. Contemporary Political Philosophy.
PHIL. 270. Ethics and Medicine.
PHIL. 271. Ethics and Business.
PHIL. 273. Environmental Philosophy.

Physics (P courses)
PHYS. 238. Interconnections of Arts and Science: Goethe and the Natural World.

Political Science (P courses)
PSCI. 271. Feminist Theory and Research.

Portuguese (P courses)
PORT. 225. Brazilian Culture through Native Material.
PORT. 291. Brazilian Civilization through English Language Material.

Psychology (P courses)
PSY. 252. Human Sexuality.

Religious Studies (P courses)
RLST. 200. Mysticism and Spirituality, Comparative Study.
RLST. 202. Natural Science and the Religious Life.
RLST. 203. Jewish Theories of Religion.
RLST. 223. Ethics and Feminism.
RLST. 229. The Holocaust: Its Meaning and Implications.
RLST. 230. Women and Religion.
RLST. 239. Religious Autobiography.
RLST. 243. New Age Spiritualities.

Sociology (P courses)
SOC. 104. Men and Women in American Society.
SOC. 104W. Men and Women in American Society.
SOC. 201. Sociological Perspectives.
SOC. 224. Women and the Law.
SOC. 230. The Family.

Spanish (P courses)
SPAN. 227. Film and Culture in Latin America.
SPAN. 243. Latino Immigration Experience.
SPAN. 244. Afro-Hispanic Literature.
SPAN. 248. Spanish-American Literature of the Post-Boom Era.
SPAN. 274. Literature and Medicine.
SPAN. 275. Latina and Latin American Women Writers.
SPAN. 292. Images of the Feminine in Spanish Cinema.

Theatre (P courses)
THTR. 206W. Contemporary Drama and Performance Criticism.
THTR. 216. The History of Fashion: Sex and Propaganda.
THTR. 280. Theatre in London.

Women's and Gender Studies (P courses)
WGS. 150. Sex and Gender in Everyday Life.
WGS. 150W. Sex and Gender in Everyday Life.
WGS. 201. Women and Gender in Transnational Context.
WGS. 226. Gender, Race, and Class.
WGS. 240. Introduction to Women's Health.
WGS. 242. Women Who Kill.
WGS. 243. Sociologies of Men and Masculinity.
WGS. 248. Humor and Cultural Critique in Fannie Flagg's Novels.
WGS. 250. Contemporary Women's Movements.
WGS. 250W. Contemporary Women's Movements.
WGS. 266. Bodies of Law.
WGS. 267. Seminar on Gender and Violence.
WGS. 271. Feminist Legal Theory.
WGS. 273. Seminar on Psychoanalysis and Feminism.

Social and Behavioral Sciences (SBS)

African American and Diaspora Studies (SBS courses)
AADS. 145. Atlantic African Slave Trade.
AADS. 201. African American Family History.
AADS. 210. Black Masculinity: Social Imagery and Public Policy.
AADS. 215. Black Issues in Education.
AADS. 240. Slavery and Public Memory.
AADS. 270. Research Methods.

American Studies (SBS courses)
AMER. 240. Topics in American Studies.
AMER. 295. Undergraduate Seminar in American Studies.
AMER. 297. Senior Project.

Anthropology (SBS courses)
ANTH. 101. Introduction to Anthropology.
ANTH. 104. Introduction to Archaeology.
ANTH. 105. Introduction to Language and Culture.

ANTH. 201. Introduction to Linguistics.
ANTH. 203. Anthropological Linguistics.
ANTH. 206. Theories of Culture and Human Nature.
ANTH. 207. Environmental Anthropology.
ANTH. 211. Archaeology.
ANTH. 216. Ancient Cities.
ANTH. 222. Anthropologies and Archaeologies of Community.
ANTH. 224. Political Anthropology.
ANTH. 231. Colonial Encounters in the Americas.
ANTH. 234. Economic Anthropology.
ANTH. 240. Medical Anthropology.
ANTH. 242. Biology of Inequality.
ANTH. 244. Social and Health Consequences of Pandemics.
ANTH. 246. Andean Culture and Society.
ANTH. 249. Indigenous Peoples of Lowland South America.
ANTH. 252. South American Archaeology.
ANTH. 261. Classic Maya Language and Hieroglyphs.
ANTH. 262. Cognitive Anthropology.
ANTH. 267. Death and the Body.
ANTH. 275. Sociocultural Field Methods.
ANTH. 281. Classic Maya Religion and Politics.
ANTH. 282. Anthropological Approaches to Human Landscapes.
ANTH. 284. Problems in Anthropological Theory.
ANTH. 286. Activism and Social Change: Theory, Experience, and Practice.

Classics (SBS courses)
CLAS. 211. The Greek City.
CLAS. 220. Women, Sexuality, and the Family in Ancient Greece and Rome.
CLAS. 260. Roman Law.

Communication Studies (SBS courses)
CMST. 101. Interpersonal Communication.

Economics (SBS courses)
ECON. 100. Principles of Macroeconomics.
ECON. 101. Principles of Microeconomics.
ECON. 150. Economic Statistics.
ECON. 155. Intensive Economic Statistics.
ECON. 209. Money and Banking.
ECON. 212. Labor Economics.
ECON. 221. Health Care Policy.
ECON. 222. Latin American Development.
ECON. 224. Russia in the World Economy.
ECON. 228. Environmental Economics.
ECON. 230. Plunder and Pillage: The Economics of Warfare and Conflict.
ECON. 231. Intermediate Microeconomic Theory.
ECON. 232. Intermediate Macroeconomic Theory.
ECON. 235. Strategic Analysis.
ECON. 242. Sports Economics.
ECON. 251. Wages, Employment, and Labor Markets.
ECON. 253. Introduction to Econometrics.
ECON. 254. Public Finance.
ECON. 255. Social Choice Theory.
ECON. 256. Seminar in Macroeconomic Policy.
ECON. 256W. Seminar in Macroeconomic Policy.
ECON. 257. Seminar in Microeconomic Policy.
ECON. 257W. Seminar in Microeconomic Policy.
ECON. 259. Financial Instruments and Markets.
ECON. 260W. Seminar on Globalization.
ECON. 262. History of Economic Thought.
ECON. 263. International Trade.
ECON. 264. International Finance.
ECON. 265. Macroeconomic Models for Policy Analysis.
ECON. 267. Poverty and Discrimination.
ECON. 268. Economics of Health.
ECON. 271. Economic History of Europe.
ECON. 273. Game Theory with Economic Applications.
ECON. 274. Industrial Organization.
ECON. 277W. Economics of Conflict.
ECON. 279. Urban Economics.
ECON. 280. Seminar in Sports Economics.
ECON. 281. Economic Growth.
ECON. 284. Topics in Econometrics.
ECON. 285. Law and Economics.

Environmental and Sustainability Studies (SBS courses)
ENVS. 278. Seminar.

Financial Economics (SBS courses)
FNEC. 220. Managerial Accounting.
FNEC. 240. Corporate Finance.
FNEC. 261. Investment Analysis.
FNEC. 275. Financial Management.

French (SBS courses)
FREN. 269. Francophone Literature and Film of the Maghreb.

History (SBS courses)
HIST. 160. European Economic History, 1000-1700.
HIST. 200W. The History Workshop.

Honors (SBS courses)
HONS. 183. College Honors Seminar in Behavioral and Social Sciences.

Jewish Studies (SBS courses)
JS. 155. American Jewish Life.
JS. 244. Freud and Jewish Identity.
JS. 252. Social Movements in Modern Jewish Life.

Latino and Latina Studies (SBS courses)
LATS. 250. Latino and Latina Business and Entrepreneurship.

Managerial Studies (SBS courses)
MGRL. 185. Negotiation.
MGRL. 190. Principles of Marketing.
MGRL. 191. Advanced Marketing.
MGRL. 192. Creative Advertising.
MGRL. 194. Fundamentals of Management.
MGRL. 195. Entrepreneurial Challenge.
MGRL. 196. Entrepreneurship: The Business Planning Process.
MGRL. 198. Corporate Strategy.

Medicine, Health, and Society (SBS courses)
MHS. 180. Racial and Ethnic Health Disparities.
MHS. 231. Chinese Society and Medicine.
MHS. 234. Men's Health Research.
MHS. 240. Social Capital and Health.
MHS. 244. Medicine, Law, and Society.
MHS. 250. Autism.
MHS. 254. Perspectives on Trauma.

Philosophy (SBS courses)
PHIL. 246. Philosophy of Language.
PHIL. 254. Modern Philosophies of Law.
PHIL. 256. Philosophy of Mind.
PHIL. 272. Ethics and Law.
PHIL. 272W. Ethics and Law.

Political Science (SBS courses)
PSCI. 101. Introduction to Comparative Politics.
PSCI. 102. Introduction to International Politics.
PSCI. 213. Democratization and Political Development.
PSCI. 215. Change in Developing Countries.
PSCI. 219. Politics of Mexico.
PSCI. 221. Causes of War.
PSCI. 222. American Foreign Policy.
PSCI. 223. European Political Economy and Economic Institutions.
PSCI. 225. International Political Economy.
PSCI. 226. International Law and Organization.
PSCI. 229. Strategy and International Politics.
PSCI. 230. Middle East Politics.
PSCI. 236. The Politics of Global Inequality.
PSCI. 238. Comparative Political Parties.
PSCI. 240. Political Parties.
PSCI. 241. American Public Opinion and Voting Behavior.
PSCI. 243. Political Campaigns and the Electoral Process.
PSCI. 244. The Legislative Process.

PSCI. 249. American Public Opinion and American Politics.
PSCI. 250. Group Conflict and Cooperation in U.S. Politics.
PSCI. 252. Business and Public Policy.
PSCI. 254. Political Psychology.
PSCI. 256. Politics of Public Policy.
PSCI. 259. Political Strategy and Game Theory.
PSCI. 260. Introduction to American Law.
PSCI. 262. The Judicial Process.
PSCI. 268. American Health Policy.
PSCI. 270. Conducting Political Research.
PSCI. 273. Conflict Management.
PSCI. 275. National Security.
PSCI. 277. Future of Warfare.

Psychology (SBS courses)
PSY. 101. General Psychology.
PSY. 208. Principles of Experimental Design.
PSY. 211. Personality.
PSY. 215. Abnormal Psychology.
PSY. 225. Cognitive Psychology.
PSY. 231. Social Psychology.
PSY. 238. Social Cognition and Neuroscience.
PSY. 239. Industrial and Organizational Psychology.
PSY. 244. Introduction to Clinical Psychology.
PSY. 245. Emotion.
PSY. 246. Schizophrenia.
PSY. 247. Depression.
PSY. 258. Animal Behavior and Evolutionary Psychology.
PSY. 268. Health Psychology.
PSY. 270. Positive Psychology.
PSY. 277. Brain Damage and Cognition.

Public Policy Studies (SBS courses)
PPS. 295. Senior Seminar on Research in Public Policy.

Religious Studies (SBS courses)
RLST. 110W. Introduction to Southern Religion and Culture.
RLST. 120. Religion, Sexuality, Power.
RLST. 123. Religion and Human Development.
RLST. 221. Ethics and Ecology.
RLST. 234. Post-Freudian Theories and Religion.
RLST. 241. Religion, Science, and Evolution.

Sociology (SBS courses)
SOC. 101. Introduction to Sociology.
SOC. 101W. Introduction to Sociology.
SOC. 102. Contemporary Social Issues.
SOC. 102W. Contemporary Social Issues.
SOC. 204. Self, Society, and Social Change.
SOC. 205. Poverty, Health, and Politics.
SOC. 206. Sociology of Health and Environmental Science.
SOC. 207. Climate Change and Society.
SOC. 208. Environment and Development.
SOC. 211. Introduction to Social Research.
SOC. 214. Art in Everyday Life.
SOC. 216. Change and Social Movements in the Sixties.
SOC. 218. Tourism, Culture, and Place.
SOC. 219. Seeing Social Life.
SOC. 221. Environmental Inequality and Justice.
SOC. 225. Women and Social Activism.
SOC. 227. Creativity and Innovation in Society.
SOC. 228. Cultural Consumption and Audiences.
SOC. 229. Cultural Production and Institutions.
SOC. 231. Criminology.
SOC. 232. Delinquency and Juvenile Justice.
SOC. 233. Deviant Behavior and Social Control.
SOC. 234. Prison Life.
SOC. 236. Class, Status, and Power.
SOC. 237. Society and Medicine.
SOC. 240. Law and Society.
SOC. 244. Politics, State, and Society.
SOC. 246. Sociology of Religion.
SOC. 247. Human Behavior in Organizations.
SOC. 248. Popular Culture Dynamics.
SOC. 250. Gender in Society.
SOC. 251. Women and Public Policy in America.
SOC. 253. Racial Domination, Racial Progress.
SOC. 254. Schools and Society: The Sociology of Education.
SOC. 255. Racial and Ethnic Minorities in the United States.
SOC. 256. Race, Gender, and Sport.
SOC. 257. Gender, Sexuality, and the Body.
SOC. 264. Social Dynamics of Mental Health.
SOC. 268. Race, Gender, and Health.
SOC. 272. Gender Identities, Interactions, and Relationships.
SOC. 274. Immigration in America.

Spanish (SBS courses)
SPAN. 212. Introduction to Spanish Linguistics.
SPAN. 213. Translation and Interpretation.
SPAN. 214. Dialectology.
SPAN. 215. Words and Stems.
SPAN. 216. Phonology.
SPAN. 217. Contrastive Analysis of Spanish and English.
SPAN. 218. Morphology and Syntax.
SPAN. 219. History of the Spanish Language.
SPAN. 220. The Languages of Spain.
SPAN. 282. Communicating Across Cultures.
SPAN. 283. Spanish in Society.
SPAN. 285. Discourse Analysis.

Women's and Gender Studies (SBS courses)
WGS. 268. Gender, Race, Justice, and the Environment.
WGS. 270. Ecofeminism: Theory, Politics, and Action.

History and Culture of the United States (US)

African American and Diaspora Studies (US courses)
AADS. 110. Race Matters.
AADS. 265. Twentieth-Century African American Biography.

American Studies (US courses)
AMER. 100. Introduction to American Studies.
AMER. 100W. Introduction to American Studies.
AMER. 202. Global Perspectives on the U.S..

Anthropology (US courses)
ANTH. 208. Food Politics in America.

Classics (US courses)
CLAS. 222. Classical Tradition in America.

Communication Studies (US courses)
CMST. 220. Rhetoric of the American Experience, 1640-1865.
CMST. 221. Rhetoric of the American Experience, 1865 to 1945.
CMST. 224. Rhetoric of Social Movements.
CMST. 225. Rhetoric of the American Experience, 1945-Present.
CMST. 226. Women, Rhetoric, and Social Change.

Economics (US courses)
ECON. 226. Economic History of the United States.
ECON. 266. Topics in the Economic History of the U.S.

English (US courses)
ENGL. 211. Representative American Writers.
ENGL. 211W. Representative American Writers.
ENGL. 213W. Literature of the American Civil War.
ENGL. 263. African American Literature.
ENGL. 263W. African American Literature.
ENGL. 267. Desire in America: Literature, Cinema, and History.
ENGL. 268a. America on Film: Art and Ideology.
ENGL. 268b. America on Film: Performance and Culture.
ENGL. 286a. Twentieth-Century Drama.
ENGL. 286b. Twentieth-Century Drama.

History (US courses)
HIST. 139. America to 1776: Discovery to Revolution.
HIST. 140. U.S. 1776-1877: Revolution to Civil War and Reconstruction.

HIST. 141. U.S. 1877-1945: Reconstruction through World War II.
HIST. 142. U.S. Post-1945: Cold War to the Present.
HIST. 144. African American History since 1877.
HIST. 165. The Foreign Expansion of American Banking.
HIST. 166. American Enterprise.
HIST. 169. Sea Power in History.
HIST. 173. The U.S. and the Cold War.
HIST. 174. The U.S. and the Vietnam War.
HIST. 243W. The English Atlantic World, 1500-1688.
HIST. 258. American Indian History before 1850.
HIST. 259. American Indian History since 1850.
HIST. 260. North American Colonial History.
HIST. 261. The Founding Generation.
HIST. 262. The Old South.
HIST. 263. The New South.
HIST. 264. Appalachia.
HIST. 269. The Civil Rights Movement.
HIST. 270. The U.S. and the World.
HIST. 271. The U.S. as a World Power.
HIST. 272a. Globalizing American History, 1877-1929.
HIST. 272b. Globalizing American History, 1940-2010.
HIST. 272c. Race, Power, and Modernity.
HIST. 272d. American Masculinities.
HIST. 281. Women, Health, and Sexuality.
HIST. 284b. Health and the African American Experience.
HIST. 287b. History of New Orleans.
HIST. 287d. Immigration, Race, and Nationality: The American Experience.
HIST. 287e. The Federalist Papers.

History of Art (US courses)
HART. 240. American Art to 1865.
HART. 241. American Art 1865 to 1945.
HART. 242. Art since 1945.

Honors (US courses)
HONS. 184. College Honors Seminar in History and Culture of the United States.

Italian (US courses)
ITA. 236. Gangsters, Lovers, Madonnas, and Mistresses.

Jewish Studies (US courses)
JS. 137W. Black-Jewish Relations in Post-War American Literature and Culture.
JS. 138. Jewish Humor.
JS. 138W. Jewish Humor.
JS. 139W. American Jewish Music.
JS. 162W. American Southern Jews in Life and Literature.

Music Literature and History (US courses)
MUSL. 147. American Music.
MUSL. 148. Survey of Jazz.
MUSL. 149. American Popular Music.
MUSL. 151. The Blues.
MUSL. 152. Country Music.
MUSL. 262. Music of the South.
MUSL. 263. American Music and Society: The 1960s.
MUSL. 264. Exploring the Film Soundtrack.

Philosophy (US courses)
PHIL. 222. American Philosophy.

Political Science (US courses)
PSCI. 100. Introduction to American Government and Politics.
PSCI. 150. U.S. Elections.
PSCI. 245. The American Presidency.
PSCI. 247. American Political Culture.
PSCI. 265. Constitutional Law: Powers and Structures of Government.
PSCI. 266. Constitutional Law: Civil Liberties and Rights.
PSCI. 267. Voting and Political Representation in America.
PSCI. 272W. The War in Iraq, 2003-2011.

Religious Studies (US courses)
RLST. 107. Introduction to African American Religious Traditions.
RLST. 204W. Evangelical Protestantism and the Culture Wars.
RLST. 219. Martin Luther King, Jr., and the Social Roles of Religion.
RLST. 242. Slave Thought and Culture in the American South.

Sociology (US courses)
SOC. 235. Contemporary American Society.
SOC. 249. American Social Movements.

Theatre (US courses)
THTR. 171. Marshals, Mobsters, Monsters, Magnums, and Musicals: American Movie Genres.
THTR. 204. Development of the American Theatre.

Women's and Gender Studies (US courses)
WGS. 246W. Women's Rights, Women's Wrongs.
WGS. 272. Feminism and Film.

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 and Transfer Credit under AXLE

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

Vanderbilt Study Abroad Programs and AXLE

Additional course credit may be earned toward AXLE curriculum requirements by successfully completing study abroad courses through Vanderbilt in France and Vanderbilt in Spain that have A&S numbers and titles. No other courses taken through either of these two programs or through other study abroad programs, including courses offered by other "VU-in" programs and including courses that are deemed to be direct equivalents to A&S courses, count toward AXLE curriculum requirements.

For more information on study abroad, see the chapter on Special Programs for Undergraduates in the front section of this catalog.

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 hours in the major field, but a given department may require up to 48 hours. Students may take more than the required number of hours in any major; any given department, however, may limit the total permissible 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 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 majors offered in the following fields:

Anthropology
Art
Biological Sciences
Chemistry
Classical Civilization
Classical Languages
Classics
Communication Studies
Earth and Environmental Sciences
Ecology, Evolution, and Organismal Biology
Economics
English
French
German
History
History of Art
Mathematics
Molecular and Cellular Biology
Philosophy
Physics
Political Science
Psychology
Religious Studies
Russian
Sociology
Spanish
Spanish and Portuguese
Theatre

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 semester hours in Arts and Science. Consultation with the student's Arts and Science academic adviser is especially important.

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 applies to 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.

The selection of a major is of considerable importance, and the entire program of concentration for the junior and senior years should be planned with the major adviser before the beginning of the junior year. Students officially declare their majors by registering with the chosen department(s) or interdisciplinary program(s), and with the Arts and Science Registrar's Office. 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.

Students may major in one of the defined interdisciplinary programs listed below. There shall not be fewer than 27 hours in the major field, but a given program may require up to 48 hours. The student must achieve at least a 2.000 average in all work taken in the major.

Defined Interdisciplinary Programs:

African American and Diaspora Studies
American Studies
Asian Studies
Communication of Science and Technology
Economics and History
European Studies
Film Studies
French and European Studies
German and European Studies
Italian and European Studies
Jewish Studies
Latin American Studies
Latino and Latina Studies
Medicine, Health, and Society
Neuroscience
Public Policy Studies
Russian and European Studies
Spanish and European Studies
Spanish, Portuguese, and European Studies
Women's and Gender Studies

Students may combine an interdisciplinary major with a major in one of the recognized fields listed at the beginning of this chapter. Upon approval of the Committee on Individual Programs and the student's adviser, (a) as many as 6 hours may be counted as part of both the interdisciplinary major and the second major, or (b) normally, no more than three introductory-level courses will be counted toward the interdisciplinary major.

Individually Designed Interdisciplinary Majors

This plan permits students to contract for an individually designed program of concentration consisting of at least 48 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. 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 hours constituting the program of concentration. A student who wants to develop such a program must first discuss it with a dean.

The student's contract 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 contract are considered to be part of the major discipline. The student must achieve at least a 2.000 average in all courses that are (or have been) part of the contract.

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 non-interdisciplinary major must include at least 24 credit hours that are being counted solely toward the major. It should be noted that adoption of this rule would apply also to the non-interdisciplinary major for those students who combine such a major with an interdisciplinary major.

Additional Programs

For information on the College Scholars program and departmental honors, please see the chapter 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 credits each. Many minors require a greater number of 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 Office of the Dean 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 fifth day of classes in the second semester of their senior year.

Optional minors are offered in the following fields:

- African American and Diaspora Studies
- American Studies
- Anthropology
- Art
- Asian Studies
- Astronomy
- Biological Sciences
- Brazilian Studies
- Chemistry
- Chinese Language and Culture
- Classical Civilization
- Classics
- Communication of Science and Technology
- Communication Studies
- Earth and Environmental Sciences
- Economics
- English
- Environmental Science
- Environmental and Sustainability Studies
- European Studies
- Film Studies
- French
- German
- History
- History of Architecture
- History of Art
- Islamic Studies
- Italian
- Italian Studies
- Japanese Language and Culture
- Jewish Studies
- Latin American Studies
- Latino and Latina Studies
- Managerial Studies:
  - Corporate Strategy
  - Financial Economics
  - Leadership and Organization
- Mathematics
- Medicine, Health, and Society
- Nanoscience and Nanotechnology*
- Neuroscience
- Philosophy
- Physics
- Political Science
- Portuguese
- Psychology
- Religious Studies
- Russian
- Russian Area Studies
- Scientific Computing*
- Sociology
- Spanish
- Theatre
- Women's and Gender Studies

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

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.

Exchange Program with Howard University

Through an agreement with Howard University in Washington, D.C., a limited number of undergraduates in the College of Arts and Science may study at Howard for one semester (in exchange with Howard undergraduates who may spend a semester at Vanderbilt). This program is available to sophomores and juniors with an overall grade point average of 2.700 or a grade point average at this level in each of the two most recent semesters. Transfer credit is offered, as described under Study Abroad in the chapter on Special Programs for Undergraduates in the front section of this catalog. For more information, contact the Office of the Dean, College of Arts and Science, 311 Kirkland Hall.

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. Among others, programs are offered in Argentina, Australia, Austria, Brazil, Chile, China, the Czech Republic, Denmark, the Dominican Republic, England, France, Germany, Ireland, Israel, Italy, Japan, Mexico, New Zealand, Russia, Scotland, Senegal, South Africa, South Korea, Spain, and Sweden 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 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 chapter on Special Programs for Undergraduates in the front 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) in that city.

There are four cities/programs for which this rule does NOT apply because of the specificity of the course of study on the Vanderbilt programs: Institut d'Entudes Politiques in Paris, France (designed for social science majors with a high degree of French proficiency); St. Charles University in Prague, Czech Republic (designed for Jewish studies majors); Classical Studies in Rome, Italy (open ONLY to classical studies majors); and Vienna, Austria (open ONLY to Blair students). That is, Arts and Science students who wish to study in Paris, Prague, Rome, or Vienna may choose to study in a program that is not Vanderbilt sponsored.

Additional Options

Students interested in receiving transfer credit for Vanderbilt-approved study abroad programs through other universities should apply to the Committee on Individual Programs. They must meet the same academic standards required for participation in Vanderbilt's study abroad programs. Information is available from the Office of the Dean.

Pre-Professional Studies

Medicine

Students interested in the study of medicine should plan their undergraduate programs in consultation with Robert Baum, doctor of orthopaedics and rehabilitation, 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 to take 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).

Early Acceptance to the Vanderbilt University School of Medicine

The Early Acceptance Program was discontinued in January 2013.

Dentistry

Students interested in predental studies should plan their undergraduate program in consultation with Robert Baum, doctor of orthopaedics and rehabilitation, 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. For further information on pre-nursing studies, see the chapter on Special Programs for Undergraduates near the front of this catalog.

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 Professor Michael L. Aurbach of the Department of Art.

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 Professor Klint Alexander, prelaw adviser.

Management

Joint Five-Year Baccalaureate–M.B.A Program. By combining one and one-half years of study in the Vanderbilt Owen Graduate School of Management with three and one-half years in Vanderbilt's College of Arts and Science, students may obtain both the baccalaureate degree and the M.B.A. degree in five years—the baccalaureate from the College of Arts and Science at the end of the fourth year under the senior-in-absentia program, and the M.B.A. from the Owen School after the fifth.

Students may major in any subject in the College of Arts and Science.

Students must apply to the Owen School for admission to the five-year program during their junior year and to the Administrative Committee of the College of Arts and Science for acceptance into the senior-in-absentia program. Students are subject to normal Owen School admission requirements, and no student is assured of admission to the Owen School. Students who are accepted will be registered in the Owen School for three semesters (a minimum of 48 hours). Up to 16 hours of Owen School courses approved by the College of Arts and Science may be counted toward completion of the undergraduate degree. Upon acceptance to the Owen School, students should contact the Office of Student Services for an advising appointment. The Owen School registrar will review undergraduate courses and arrange for transfer of those credits toward the student's M.B.A. degree.

Financial Aid. The scholarship or other financial aid commitment of the College of Arts and Science will not be continued automatically beyond the seventh semester for students enrolled in the joint program. Eighth semester scholarships or other financial aid are the responsibility of the Owen School. The Owen School will advise students of the level of financial support, if any, prior to their enrollment in the joint program, to be provided during the eighth and subsequent semesters. This ensures that an eighth semester scholarship from the College of Arts and Science is protected for the student until a final decision is made to enroll in the Owen School.

Planning for the Program. Students interested in this program should consult William Damon or Malcolm Getz in the Department of Economics, or the Owen Admissions Office, for advice on planning undergraduate studies to meet the program's requirements.

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 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 Yollette Jones). The necessary forms for earning academic credit for an internship may be obtained from the A&S Dean's Office in 311 Kirkland Hall, although students register for internships through the registrar's office of their respective school. The deadline for submitting registration forms to Dean Jones's office 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 Center for Student Professional Development.

Interdisciplinary Internships
INDS 280a–280b–280c–280d. 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 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 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 hours of academic credit per semester or summer for the following courses (internship courses are offered during FALL, SPRING, and SUMMER sessions):

AADS 280a–280b. 280a: Internship Readings and Research [3–6], 280b: Internship Training [1–9].

AMER 280a–280b. 280a: Internship Readings and Research [3–6], 280b: Internship Training 1–6].

ANTH 287a–287b. 287a: Internship Readings and Research [1–6], 287b: Internship Training [1–9].

FILM 280a–280b. 280a: Internship Readings and Research [1–6], 280b: Internship Training [1–9].

FREN 287a–287b. 287a: Internship Readings and Research in France [3], 287b: Internship Training in France [1].

GER 293a–293b–293c. 293a: Internship Training [1-9], 293b: Internship Research [3-6], 293c: Internship Readings [3-6].

HIST 293a–293b–293c. 293a: Internship Training [3–9], 293b: Internship Research [3], 293c: Internship Readings [3].

HART 293a–293b. 293a: Internship Research [1–3], 293b: Internship Training [1-9].

JS 288a–288b. 288a: Internship Training [1–3], 288b: Internship Research [3].

LAS 280a–280b. 280a: Internship Readings and Research [3-6], 280b: Internship Training [1–9].

MHS 293a–293b. 293a: Internship Training [1–9], 293b: Internship Readings and Research [1–6].

PSCI 280a–280b–280c. 280a: Internship Training [1–9], 280b: Internship Research [1–3], 280c: Internship Readings [1–3].

RUSS 280a–280b. 280a: Internship Training [1–9], 280b: Internship Readings and Research [3–6].

SOC 280a–280b. 280a: Internship Readings and Research [3-6], 280b: Internship Training [1–9].

WGS 288a–288b–288c. 288a: Internship Training [1–9], 288b: Internship Research [1–3], 288c: Internship Readings [1–3].

More complete information regarding departmental internship courses may be found in the course descriptions in this catalog. (Courses which have been approved recently by the faculty may not appear in the most recent edition of the 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 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 Center for Student Professional Development 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, who 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; 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 Associate Dean Martin Rapisarda, 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 *vanderbilt.edu/4plus1*), 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 how 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 those 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, too.

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 Associate Dean Martin Rapisarda, 311 Kirkland Hall, *martin.rapisarda@vanderbilt.edu*, or consult the website *vanderbilt.edu/4plus1*.

Honors

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 year's Vanderbilt graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous year's Vanderbilt graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous year's Vanderbilt graduating seniors.

Graduates who complete the requirements of the College Scholars program are awarded "Honors in the College of Arts and Science," and this designation appears on their diplomas. Candidates successfully completing departmental honors programs are awarded honors or highest honors in their major field, and this designation appears on their diploma.

College Scholars Program

Entering first-year students with outstanding academic records and students who achieve academic distinction during their first semester at Vanderbilt are invited to participate in the College Scholars program. These students have the exclusive opportunity to pursue advanced scholarly work in honors seminars and enriched courses or independent-studies projects. They may earn the designation "Honors in the College of Arts and Science" on their diplomas.

To earn the designation, College Scholars must accumulate fifteen "honors points" by achieving the grade *B* or better in approved courses and projects. A maximum of thirteen of these honors points may be earned in honors seminars. Honors seminars in the humanities, natural sciences, and the social sciences serve toward satisfaction of AXLE requirements in these areas. For a complete description of how honors points may be earned and a listing of honors seminars offered, see the entry on Honors in alphabetical order under Courses of Study.

College Scholars are not required—although many will choose—to earn honors in the College of Arts and Science; all, however, may enroll in as many honors seminars as they want. 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 Russell McIntire.

Departmental Honors

To encourage individual development and independent study in a special field of interest, many departments of the College of Arts and Science offer honors programs for selected, superior candidates. Students normally begin departmental honors work in the junior year, but exceptions may be made in the case of outstanding seniors. To qualify for consideration, students must have (a) attained a minimum grade point average of 3.000 in all work previously taken for credit and in the program of concentration, and (b) exhibited to the department(s) concerned such other evidence as may be required to indicate a capacity for independent study. Some departments require higher grade point averages in the major. Formal admission is by the Office of the Dean after election by the department(s) concerned, with the approval of the director of honors study, who supervises the program with the aid of the Committee on the Honors Program.

Provisions vary somewhat from department to department (see descriptions in the appropriate department sections of this catalog), but generally honors students are exempted from some normal junior and senior class work in their major fields in order to devote time to independent study under the supervision of a faculty adviser. 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 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 semester 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 semester 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 semester 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 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, department placement, Advanced Placement, or International Baccalaureate test scores.

Mathematics proficiency may be demonstrated by taking at least one semester of calculus and a second mathematics, statistics, or formal logic course which has calculus as a prerequisite. Courses must be taken on a graded rather than a P/F basis. Non-calculus-based statistics or introductory logic courses generally do not satisfy the mathematics criteria. The mathematics requirement may be satisfied with Advanced Placement or International Baccalaureate 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 *vanderbilt.edu/pbk* for additional information.

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.

D. 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 Women's and Gender 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

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 Office of the Dean of 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 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 (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 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.

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 hours may be taken in any one semester without authorization of the Administrative Committee or an advising dean in 311 Kirkland Hall. (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 outside employment or illness. During the summer session, there is no minimum course load. Summer loads exceeding 14 hours must be authorized by an advising dean in 311 Kirkland 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.

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 school registrar. 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 completed at least two semesters at Vanderbilt, must have achieved at least sophomore standing, and must not be on academic probation.

No more than 18 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 that have been specifically excluded from the P/F option;
7. Courses taken previously.
8. 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 *P* grade is automatically converted to the grade actually earned.
9. Minimum 12 graded hours required.

Students may register for grading on a Pass/Fail basis until the close of the Change Period at the end of the second week of classes. Students may change from Pass/Fail to graded status until the deadline date for dropping 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.

Undergraduate Enrollment in Graduate Courses

A qualified Vanderbilt University senior undergraduate may enroll in courses approved for graduate credit 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 and listed as such in the Graduate School catalog, excluding thesis and dissertation research courses and similar individual research and readings courses.
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 hours in any semester.
4. A registration form for undergraduate Arts and Science students wishing to exercise this option is available in the College of Arts and Science office. 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 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. Juniors or seniors who wish to take such courses must use the following procedure:

1. Obtain permission to enroll from the instructor of their choice. Consult the instructor prior to the course request period of registration for the semester in which the study is to be undertaken.
2. Register for the course through the appropriate department.
3. Make a written study plan detailing the nature of the project and the amount of credit and have it approved by the instructor and the department chair (or the chair's designee) by the tenth day after classes begin.

Students who have not met these requirements are reported on the tenth-day enrollment report as "registered but not attending" and are dropped from the course.

Students may not repeat independent study or directed study courses for grade replacement. Independent study courses in other schools approved by the College Curriculum Committee may be taken for credit if the project is approved by the Committee on Individual Programs.

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. A previously passed course is repeated within one year or (for courses not offered within a year) the first time it is offered. Passed courses may be repeated only once. Failed courses may be repeated at any time and any number of times.
2. Exactly the same course (same department and course number) is completed. For First-Year Writing Seminars, it must be the same department and section number. In addition, a very small number of differently numbered courses as approved by the faculty may be substituted under this policy. These are designated in the departmental course listings.
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 most 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. The Registrar's Office should be consulted as to the status of similar but differently numbered courses.

Courses taken in the College of Arts and Science may not be repeated elsewhere for grade replacement; nor may courses taken elsewhere be repeated in the College of Arts and Science 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 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 primary 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 faculty 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 end of the eighth week of classes, a course may be dropped with the consent of the course instructor and the student's adviser. During the same period students may change their status from P/F to regularly graded—but not vice versa—in a course.

These changes must be made with a Change of Course card, which the student must submit to the Arts and Science Registrar's Office. After the end of the eighth week, withdrawal is possible only in the most extraordinary circumstances, such as illness or unusual personal or family problems. In every case the student, the instructor, and an advising dean must agree that late withdrawal is justified by the circumstances. Cases in which agreement is not possible are decided by the Administrative Committee. After the end of the eighth week, 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. Students who default in a course without officially dropping it receive the grade *F*.

Minimum Graded Hours

A course may not be dropped without authorization of the Administrative Committee or an advising dean if the student is left with a course load of fewer than 12 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 to students' Access to Academic Information online summary. 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. But 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 Office of the Dean 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. 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, 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 wanting to earn credit by departmental examination should consult the Arts and Science Registrar's Office 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 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 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 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 hours, grade point average, and degree requirements still to be met. Students should examine their Degree Audit reports carefully and discuss them with their faculty advisers. Any errors should be reported

immediately to the Arts and Science Registrar's Office (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 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 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 with a specified deadline by which they will be replaced with a permanent grade. Temporary grades are not calculated in the GPA, but a student who receives a temporary grade is ineligible for the Dean's List. Students cannot graduate with any temporary grades.

M: Missing a Final Examination

The grade *M* is given to a student who misses a final examination and is not known to have defaulted in the course, unless the student could not have passed the course even with the final examination, in which case the grade *F* is given. The course grade of a student known to have defaulted on a final examination is computed on the basis of a score of zero for the final examination. It is the responsibility of the student who misses a final examination to present an excuse to the dean immediately. If the excuse is considered adequate, the grade *M* is authorized.

A student who secures authorization for an absence at the proper time is obliged to take a makeup examination during the first full week after the Change Period of the next semester, provided the student is in residence. It is the student's responsibility to contact the Office of the Dean (311 Kirkland Hall) before the second day of classes to schedule the makeup. If the student is not in residence, the grade *M* must be removed by a makeup examination given within a maximum period of one year from the date of the missed examination and during one of the regular makeup examination periods. If the student fails to take the makeup examination within the prescribed time, the *M* grade will be replaced by a default grade submitted by the instructor when the *M* is assigned.

I: Incomplete

The grade of *I* is given only under extenuating circumstances and only when a significant body of satisfactory work has been completed in a course. The *I* is not intended as a replacement for a failing grade, nor should it be assigned if a student simply misses the final examination. The grade of *M* is used for the latter purpose. The grade for a student who misses a final examination and whose work is also incomplete in other respects is reported as *MI.* The request for an *I* is generally initiated by the student but must be approved and assigned by the instructor. When assigning an Incomplete, the instructor specifies (a) a deadline by which the *I* must be resolved and replaced by a permanent grade and (b) a default course grade that counts the missing work as zero. The deadline may be no later than the end of the next regular semester. The Incomplete can be extended beyond the next semester only if the student's Associate Dean determines that an extension is warranted. If the required work is submitted by the deadline for removing the Incomplete, the *I* will be replaced by the grade earned. If the work is not completed by the deadline, the default grade will become the permanent grade for the course.

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 the dean. It is the student's responsibility to contact the Office of the Dean (311 Kirkland Hall) to request permission to take a makeup examination and to arrange for the submission of the missing work.

Makeup Examinations

For students who receive the authorized grade *M,* the Office of the Dean will arrange makeup examinations during the next semester, but it is the responsibility of the student to schedule the makeup at the Office of the Dean (311 Kirkland Hall) before the second day of classes. The makeup examination period is the first full week after the Change Period of each semester. The Administrative Committee may on occasion authorize a makeup examination at some time other than the makeup period for a particular student.

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 Registrar's Office may be changed only upon written 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 needed by the College of Arts and Science to assess the program for which transfer of credit is requested. Work presented for transfer must be from an accredited college and is subject to evaluation in light of the degree requirements of the College of Arts and Science. Students seeking transfer credit for work at nonaccredited institutions will be considered individually. Correspondence courses will not be considered for transfer credit.

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 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. Credit for previous work will not be added to the student's record after matriculation. Credit will not be awarded for internships.

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 semester hours), including the last two semesters (at least 30 semester 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 semester hours) in residence in the College of Arts and Science.

Summer 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 summers at another four-year, fully accredited institution. To qualify for such credit, the student must be in good standing and must obtain authorization from an advising dean and the appropriate department in advance of taking the course. Such courses cannot fulfill AXLE requirements, count as part of the last 30 hours in residence, duplicate a course taken previously, or be taken on a Pass/Fail or similar basis. Credit will not be awarded for internships.

Semester Work at Another Institution

Students who wish to receive transfer credit for a semester of work at another institution must receive approval in advance from the Committee on Individual Programs. To qualify for such credit, the student must be in good standing and must present to the committee 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 by this committee must be followed by approval of specific courses by the student's adviser, the appropriate department in the College of Arts and Science, and the Arts and Science Registrar's Office. Such courses cannot fulfill AXLE requirements, count as part of the last 30 hours in residence, duplicate a course taken previously, or be taken on a Pass/Fail or similar basis. Credit will not be awarded for online courses or internships.

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 hours needed for graduation can be earned; and (d) obtained the approval of the major department and the 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 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 application forms and instructions from the Office of the Dean of the College of Arts and Science. 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. But 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 dean informed of any change of address while on leave.

A student who seeks to transfer to Vanderbilt credit earned elsewhere while on leave of absence must obtain permission in advance from the Committee on Individual Programs. Applications for leaves of this type must be filed with the committee at least one month before the close of the preceding semester.

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 readmission.

Withdrawal from the University

Students proposing to withdraw from the university during a regular term must report to the Office of the Dean of 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 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 hours but pass fewer than 12 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 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. 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 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 hours and a semester grade point average of 1.500 or better, assuming they have fulfilled the requirements for class standing stated below.

Freshmen 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.

Freshmen who earn fewer than 9 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 readmission.

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 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 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 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 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 100 if required and successful completion of a First-Year Writing Seminar (numbered 115F in various disciplines). Freshmen 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 hours of work with a grade point average of 1.900, completion of four regular semesters (fall or spring), and completion of 100-level writing course. 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 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.

Appeals

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 for readmission. Students who are advised to withdraw from the university determine whether or not to return in consultation with the Office of the Dean. Students who have been dropped may apply to the Office of Undergraduate Admissions for readmission; in most cases readmission is not granted unless there has been an intervening period of at least a year. The Office of Undergraduate Admissions forwards all documents to the Administrative Committee, which considers each case on an individual basis. Readmission is competitive, and there is no assurance that it will be granted. Students readmitted 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 readmission. Application deadlines for readmission are as follows: July 15 for the fall semester, November 15 for the spring semester, and April 1 for the summer session.

Deficiency in Foreign Language

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.

College of Arts and Science Programs of Study

African American and Diaspora Studies

DIRECTOR Victor Anderson
DIRECTOR OF UNDERGRADUATE STUDIES Tiffany R. Patterson
DIRECTOR OF GRADUATE STUDIES Trica Keaton
PROFESSORS Victor Anderson, Houston Baker, Tracy D. Sharpley-Whiting
ASSOCIATE PROFESSORS Trica Keaton, Tiffany R. Patterson, Gilman W. Whiting
ASSISTANT PROFESSOR Jemima Pierre
WRITER IN RESIDENCE Alice Randall

THE concentration in African American and Diaspora Studies requires 36 hours of course work. Approved courses taken at Fisk University may be counted as electives in the program of study. The course of study in the African American and Diaspora Studies program is divided into three areas: Area of Study I, Literature, Theory, and Visual Culture; Area of Study II, Gender and Sexuality; and Area of Study III, Social Sciences.

Program of Concentration in African American and Diaspora Studies

Requirements for the major include at least 36 hours of credit as follows:

1. 3 hours of credit from AADS 101, Introduction to African American and Diaspora Studies.
2. 6 hours of credit from Area of Study I, Literature, Theory, and Visual Culture.
3. 6 hours of credit from Area of Study II, Gender and Sexuality.
4. 6 hours of credit from Area of Study III, Social Sciences.
5. 9 hours of credit from Electives.
6. 3 hours of credit from AADS 270, Research Methods. Majors are advised to take this course before their fourth year of study but not before the second semester of their sophomore year.
7. 3 hours of credit in AADS 299, Senior Thesis in African American and Diaspora Studies.

At least 6 hours of the concentration must focus on the Americas (outside of the United States) and/or Africa.

No more than 9 hours of course work can be taken at the 100 level (excluding AADS 101).

Honors Program

Requirements for the Honors major include a cumulative GPA of 3.0 and a GPA of 3.3 in African American and Diaspora Studies, the 33 hours of the regular major as outlined in 1 through 6 above, and 3 hours of credit in AADS 298, Senior Honors Thesis. Students pursuing the Senior Honors Thesis may apply to the program for nominal funding to assist with research projects. The thesis must be approved by a committee of two faculty members (one of whom must be affiliated with the African American and Diaspora Studies program). Students must also complete a public presentation of their thesis research/findings from the Senior Honors Thesis.

Minor in African American and Diaspora Studies

Requirements for completion of the minor include at least 21 hours of credit as follows:

1. 3 hours of credit in AADS 101, Introduction to African American and Diaspora Studies.
2. 3 hours of credit from Area of Study I, Literature, Theory, and Visual Culture.
3. 3 hours of credit from Area of Study II, Gender and Sexuality.
4. 3 hours of credit from Area of Study III, Social Sciences.
5. 9 hours of credit from Electives.

At least 6 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 100 level (excluding AADS 101).

Minors are also encouraged to take AADS 270, Research Methods, which counts as a course from Area of Study III, Social Sciences, but not before the second semester of the sophomore year.

Areas of Study and Electives

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, Literature, Theory, and Visual Culture

AFRICAN AMERICAN AND DIASPORA STUDIES: 110, Race Matters; 150, Reel to Real: Film Aesthetics and Representation*; 202, Mystery, Murder, and Mayhem in Black Detective Fiction; 205, Haiti: Freedom, Democracy*; 230, Race, Mixed Race, and "Passing"; 240, Slavery and Public Memory*.

Area of Study II, Gender and Sexuality

AFRICAN AMERICAN AND DIASPORA STUDIES: 120, Diaspora Feminisms*; 200, Popular Culture and Black Sexual Politics; 204W, African American Children's Literature; 207, Black Women and the Politics of Blackness and Beauty; 208W, Soul Food as Text in Text: An Examination of African American Foodways; 209, Black Paris–Paris Noir: The African Diaspora and the City of Light; 210, Black Masculinity: Social Imagery and Public Policy; 221, History and Myth: Black Women in the United States; 260, Black Diaspora Women Writers*; 265, Twentieth-Century African American Biography; 269, African Diaspora Ethnography.

Area of Study III, Social Sciences

AFRICAN AMERICAN AND DIASPORA STUDIES: 102, Making of the African Diaspora*; 140, Blacks in Latin America and the Caribbean*; 145, Atlantic African Slave Trade*; 160, Black Migrations in the African Diaspora*; 165, Global Africa*; 190, Global Anti-Blackness and Black Power*; 201, African American Family History; 203W, Blacks in the Military; 215, Black Issues in Education; 220, Colonialism and After*; 270, Research Methods; 275, Black Europe*.

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 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: 115F, First-Year Writing Seminar.

ANTHROPOLOGY: 205, Race in the Americas*; 210, Culture and Power in Latin America*.

CLASSICAL STUDIES: 238, The Amarna Age*.

ECONOMICS: 226, Economic History of the United States.

ENGLISH: 246, Feminist Theory; 263, 263W, African American Literature; 271, Caribbean Literature*; 275, Latino-American Literature.

FRENCH: 222, Introduction to Francophone Literature*; 239, The African Novel*.

HISTORY: 127, Sub-Saharan Africa 1400–1800*; 128, Africa since 1800*; 141, U.S. 1877–1945: Reconstruction through World War II; 144, African American History since 1877; 245, Reform, Crisis, and Independence in Latin America, 1700–1820; 249, Brazilian Civilization*; 257, Caribbean History 1492–1983*; 262, The Old South; 263, The New South; 268, Black New York; 269, The Civil Rights Movement; 284b, Health and African American Experience; 288b, Poverty, Economy, Society in Sub-Saharan Africa; 288W, Blacks and Money.

HISTORY OF ART: 295, Advanced Seminar in History of Art.

LATIN AMERICAN STUDIES: 260, Latin America, Latinos, and the United States*.

MUSIC: 148, Survey of Jazz; 149, American Popular Music; 151, The Blues; 160, World Music*; 171, African Music*; 261, Music, Identity, and Diversity.

RELIGIOUS STUDIES: 107, Introduction to African American Religious Traditions; 219, Martin Luther King, Jr., and the Social Roles of Religion.

SOCIOLOGY: 239, Women, Gender, and Globalization; 248, Popular Culture Dynamics; 250, Gender in Society; 251, Women and Public Policy in America; 255, Racial and Ethnic Minorities in the United States; 257, Gender, Sexuality, and the Body; 268, Race, Gender, and Health; 277, Contemporary Latin America*.

SPANISH: 243, Latino Immigration Experience*; 244, Afro-Hispanic Literature*.

WOMEN'S AND GENDER STUDIES: 150, Sex and Gender in Everyday Life; 150W, Sex and Gender in Everyday Life; 240, Introduction to Women's Health; 250, 250W, Contemporary Women's Movements.

Course descriptions begin on page 164.

American Studies

DIRECTOR Vanessa Beasley
PROFESSORS Teresa A. Goddu (English), Michael Kreyling (English), Dana Nelson (English), Cecelia Tichi (English)

Affiliated Faculty
PROFESSORS Victor Anderson (Divinity), Houston Baker (English), Lewis V. Baldwin (Religious Studies), Richard Blackett (History), Mark Brandon (Law), William Collins (Economics), Daniel B. Cornfield (Sociology), Colin Dayan (English), Dennis C. Dickerson (History), Katharine Donato (Sociology), Tony Earley (English), Vivien G. Fryd (History of Art), Gary Gerstle (History), Sam B. Girgus (English), Michael Hodges (Philosophy), Larry W. Isaac (Sociology), Vera Kutzinski (English), John Lachs (Philosophy), Jane Landers (History), William Luis (Spanish), Elizabeth Lunbeck (History), Holly McCammon (Sociology), Jonathan Metzl (Medicine, Health, and Society), Bruce I. Oppenheimer (Political Science), Lucius Outlaw Jr. (Philosophy), Charlotte Pierce-Baker (Women's and Gender Studies), Thomas A. Schwartz (History), Tracy Sharpley-Whiting (African American and Diaspora Studies), John M. Sloop (Communication Studies), Hortense Spillers (English), Carol Swain (Political Science), Daniel H. Usner (History)
ASSOCIATE PROFESSORS Vanessa Beasley (Communication Studies), Karen E. Campbell (Sociology), David Lee Carlton (History), Bonnie Dow (Communication Studies), James Fraser (Human and Organizational Development), Jon W. Hallquist (Theatre), Jonathan Hiskey (Political Science), Shaul Kelner (Sociology/Jewish Studies), Kevin Leander (Education), Richard Lloyd (Sociology), Lorraine Lopez (English), Jim Lovensheimer (Music), Melanie Lowe (Music), Catherine Molineux (History), Tiffany Patterson (African American and Diaspora Studies), Nancy Reisman (English), Gilman Whiting (African American and Diaspora Sudies)
ASSISTANT PROFESSOR Claire Sisco King (Communication Studies)
SENIOR LECTURER Susan Kevra (French and Italian)
WRITER IN RESIDENCE Alice Randall (African American and Diaspora Studies)

THE American Studies program is an interdisciplinary program that enables students to engage the diversity of American culture from a variety of intellectual disciplines and perspectives. Through course offerings, colloquia, and research opportunities, program students and faculty engage the states of the nation in a post-9/11 era, examining anew the formation of social, legal, cultural, and economic identities within the borders of the United States. Compelling matters of class, race, ethnicity, sexuality, environmentalism, technology, the arts, region, and religion take their proper and vital place in the curriculum of study. As much of the United States becomes a bilingual nation, the program identifies itself within the larger geographic and geopolitical parameters of the Americas, including Canada, Mexico, the Caribbean, Central and South America. American studies, in addition, addresses itself to important distinctions within the concept of globalization, ranging from transnational corporate activities to those of nongovernmental organizations committed to such projects as public health, philanthropy, and nutrition. The American Studies program particularly encourages and provides opportunities for on- and off-campus research, internships, study abroad, and individualized and group projects under the guidance of participating faculty in the humanities, arts, and social sciences.

The program is directed by Teresa Goddu, associate professor of English and chair of the College Committee on American Studies.

Program of Concentration in American Studies

The interdisciplinary major in American studies consists of 36 hours of course work, distributed as follows:

1. Core Requirements 6 hours
2. International Requirement 3 hours
3. Distribution Requirements 18 hours
4. Electives 9 hours

Note: No course may be counted twice in calculating the 36 hours. No more than 6 hours at the 100 level can count toward the interdisciplinary major (except for History, where all courses above 160 count). Students seeking a second major may count a maximum of 6 hours of course work toward meeting requirements in both majors.

1. Core Requirements (6 hours)

Core Courses:
American Studies 294, The American Studies Workshop (3 hours)
American Studies 297, Senior Project (3 hours)

2. International Requirement (3 hours)

One of the following:

A) A semester abroad in a Vanderbilt-approved study abroad program and an additional 3-hour elective
B) American Studies 202, Global Perspectives on the U.S. (3 hours)
C) One of the following:

Anthropology: 231, Colonial Encounters in the Americas.

Asian Studies: 240, Current Japan-U.S. Relations.

Economics: 260W, Seminar on Globalization.

English: 271, Caribbean Literature.

History: 137, Colonial Latin America; 138, Modern Latin America; 245, Reform, Crisis, and Independence in Latin America, 1700–1820; 246, Colonial Mexico; 247, Modern Mexico; 248, Central America; 251, Reform and Revolution in Latin America; 253a, Latin America and the United States; 257, Caribbean History, 1492–1983; 270, The U.S. and the World; 271, The U.S. as a World Power; 294, Selected Topics in History.

Interdisciplinary Studies: 270a, Global Citizenship and Service; 270b, Global Community Service; 270c, Seminar in Global Citizenship and Service.

Jewish Studies: 158, The Jewish Diaspora.

Latin American Studies: 201, Introduction to Latin America; 231, Music of Protest and Social Change in Latin America; 294a, Special Topics in Latin American Studies.

Political Science: 217, Latin American Politics; 219, Politics of Mexico; 225, International Political Economy; 228, International Politics of Latin America; 236, The Politics of Global Inequality.

Religious Studies: 251, Islamic Mysticism.

Sociology: 277, Contemporary Latin America; 279, Contemporary Mexican Society.

Spanish: 223, Spanish American Civilization; 247, Spanish-American Literature of the Boom Era; 248, Spanish-American Literature of the Post-Boom Era.

3. Distribution Requirements (18 hours)

6 hours from at least two different departments or programs in each of the following three areas:

A) Humanities: Classical Studies, Communication Studies, English, History of Art, Music, Philosophy, Religious Studies, Spanish and Portuguese, Theatre.
B) Social Sciences: Anthropology, Economics, History, Political Science, Sociology.
C) Interdisciplinary Programs: African American and Diaspora Studies; American Studies; Earth and Environmental Sciences; Film Studies; Jewish Studies; Latin American Studies; Medicine, Health, and Society; Women's and Gender Studies.

Note: See below for a list of approved courses in each of these areas.

4. Electives (9 hours)

Three courses taken from the approved list of courses. Students should choose these courses in consultation with their adviser to form a study of concentration.

Minor in American Studies

The interdisciplinary minor in American studies consists of 18 hours of course work, distributed as follows:

1.	Core Requirements	3 hours
2.	International Requirement	3 hours
3.	Distribution Requirements	9 hours
4.	Electives	3 hours

Note: No course may be counted twice in calculating the 18 hours. No more than 6 hours at the 100 level can count toward the interdisciplinary minor. Students seeking a minor may count a maximum of 3 hours of course work toward meeting requirements in both their major and minor.

1. Core Requirements (3 hours)

Core Course: American Studies 294, The American Studies Workshop (3 hours)

2. International Requirement (3 hours)

One of the following:

A) A semester abroad in a Vanderbilt-approved study abroad program and an additional 3-hour elective
B) American Studies 202, Global Perspectives on the U.S. (3 hours)
C) One course from the list of courses under the International Requirement, part C, of the major.

3. Distribution Requirements (9 hours)

3 hours in each of the following three areas:

A) Humanities: Classical Studies, Communication Studies, English, History of Art, Music, Philosophy, Religious Studies, Spanish and Portuguese, Theatre
B) Social Sciences: Anthropology, Economics, History, Political Science, Sociology, Psychology
C) Interdisciplinary Programs: African American and Diaspora Studies; American Studies; Earth and Environmental Sciences; Film Studies; Jewish Studies; Latin American Studies; Medicine, Health, and Society; Women's and Gender Studies

Note: See below for a list of approved courses in each of these areas.

4. Electives (3 hours)

One to two courses taken from the approved list of courses. Students should choose this course in consultation with their adviser to form a study of concentration.

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 3.25 cumulative grade point average.
3. A 3.5 cumulative grade point average in American studies.
4. 6 hours in the fall and spring semesters of the senior year in AMER 298/299 devoted to a major research project leading to an honors thesis. 299 counts as the Senior Project (297), and 298 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 focusing 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 seminar, our introductory course to the major, AMER 100/100W, or an introductory course in a particular discipline or program. While we do not require a set path into the major, up to 6 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 topic to focus their major around. We also highly encourage our majors to seek opportunities for study abroad or internship possibilities. Students should plan on taking the American Studies Workshop during their junior year and our capstone course, the Senior Project, during their senior year. Distributional requirements and electives should be decided in conjunction with the student's adviser.

We also encourage our students to participate in American Studies programming that occurs outside the classroom, such as visiting speakers and our Road Trip Series.

Please consult the American Studies program website for detailed descriptions of courses. For all 115F, 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:* 115F in all departments receives credit when an American topic is offered.

Approved List of Courses

AREA A: HUMANITIES

ART: 285, Maymester Contemporary Art Blitz (when U.S. city/art).

CLASSICAL STUDIES: 222, Classical Tradition in America.

COMMUNICATION STUDIES: 210, Rhetoric and Civic Life; 220, Rhetoric of the American Experience, 1640–1865; 221, Rhetoric of the American Experience, 1865 to 1945; 223, Values in Modern Communication; 224, Rhetoric of Social Movements; 225, Rhetoric of the American Experience, 1945–Present; 226, Women, Rhetoric, and Social Change; 235, Communicating Gender; 241, Rhetoric of Mass Media; 244, Politics and Mass Media; 294, Selected Topics in Communication Studies; 295–296, Seminars in Selected Topics.

ENGLISH: 211, 211W, Representative American Writers; 212, Southern Literature; 213W, Literature of the American Civil War; 214a–214b, Literature and Intellectual History (when an American topic is offered); 232a–232b, Twentieth-Century American Novel; 256, Modern British and American Poetry: Yeats to Auden; 258, Poetry since World War II; 260, Nineteenth-Century American Women Writers; 263, 263W, African American Literature; 265, Film and Modernism; 266, Nineteenth-Century American Literature; 267, Desire in America: Literature, Cinema, and History; 268a, America on Film: Art and Ideology; 268b, America on Film: Performance and Culture; 269, Special Topics in Film; 271, Caribbean Literature; 272, 272W, Movements in Literature (when an American topic is offered); 273, 273W, Problems in Literature (when an American topic is offered); 274, 274W, Major Figures in Literature; 275, Latino-American Literature; 277, 277W, Asian American Literature; 279, 279W, Ethnic American Literature; 280, Workshop in English and History; 283, Jewish American Literature; 286a–286b, Twentieth-Century Drama; 287, Special Topics in Investigative Writing in America; 288, 288W, Special Topics in English and American Literature (when an American topic is offered).

HISTORY OF ART: 232, Modern Architecture; 233, History of Photography; 240, American Art to 1865; 241, American Art 1865 to 1945; 242, Art since 1945; 295, Advanced Seminar in History of Art (when an American topic is offered).

MUSIC LITERATURE AND HISTORY: 103, Musical Theatre in America: A Cultural History; 147, American Music; 148, Survey of Jazz; 149, American Popular Music; 151, The Blues; 152, Country Music; 153, History of Rock Music; 154, Music and the Fall of Segregation; 261, Music, Identity, and Diversity; 262, Music of the South; 263, American Music and Society: The 1960s; 264, Exploring the Film Soundtrack.

PHILOSOPHY: 213, Contemporary Philosophy; 222, American Philosophy; 228, Nineteenth-Century Philosophy; 234, Philosophy of Education.

RELIGIOUS STUDIES: 107, Introduction to African American Religious Traditions; 110W, Introduction to Southern Religion and Culture; 204W, Evangelical Protestantism and the Culture Wars; 219, Martin Luther King, Jr., and the Social Roles of Religion; 242, Slave Thought and Culture in the American South.

SPANISH AND PORTUGUESE: 243, Latino Immigration Experience; 244, Afro-Hispanic Literature.

THEATRE: 171, Marshals, Mobsters, Monsters, Magnums, and Musicals: American Movie Genres; 204, Development of the American Theatre.

AREA B: SOCIAL SCIENCES

ANTHROPOLOGY: 205, Race in the Americas.

ECONOMICS: 212, Labor Economics; 226, Economic History of the United States; 249, Special Topics; 251, Wages, Employment, and Labor Markets; 266, Topics in the Economic History of the U.S.

HISTORY: 139, America to 1776: Discovery to Revolution; 140, U.S. 1776–1877: Revolution to Civil War and Reconstruction; 141, U.S. 1877–1945: Reconstruction through World War II; 142, U.S. Post-1945: Cold War to the Present; 144, African American History since 1877; 165, The Foreign Expansion of American Banking; 166, American Enterprise; 169, Sea Power in History; 173, The U.S. and the Cold War; 174, The U.S. and the Vietnam War; 184, Sexuality and Gender in the Western Tradition since 1700; 187, Pornography and Prostitution in History; 250, Gender and Women in Colonial America; 253a, Latin America and the United States; 258, American Indian History before 1850; 259, American Indian History since 1850; 261, The Founding Generation; 262, The Old South; 263, The New South; 264, Appalachia; 269, The Civil Rights Movement; 270, The U.S. and the World; 271, The U.S. as a World Power; 272a, Globalizing American History, 1877–1929; 272d, American Masculinities; 275a, American Intellectual History since 1865; 280, Modern Medicine; 281, Women, Health, and Sexuality; 284b, Health and the African American Experience; 286b, U.S. and Caribbean Encounters; 287b, History of New Orleans; 287d, Immigration, Race, and Nationality: The American Experience; 287e, The Federalist Papers; 288W, Blacks and Money; 291, Workshop in English and History; 294, Selected Topics in History (when an American topic is offered); 295, Majors Seminar (when an American topic is offered).

POLITICAL SCIENCE: 100, Introduction to American Government and Politics; 150, U.S. Elections; 222, American Foreign Policy; 240, Political Parties; 241, American Public Opinion and Voting Behavior; 243, Political Campaigns and the Electoral Process; 244, The Legislative Process; 245, The American Presidency; 247, American Political Culture; 249, American Political Thought; 250, Group Conflict and Cooperation in U.S. Politics; 255, Public Policy Problems; 260, Introduction to American Law; 262, The Judicial Process; 263, Religion and Politics; 265, Constitutional Law: Powers and Structures of Government; 266, Constitutional Law: Civil Liberties and

Rights; 281, Topics in Contemporary Politics; 283, Selected Topics of American Government; 287, Selected Topics (when an American topic is offered).

SOCIOLOGY: 104, 104W, Men and Women in American Society; 204, Self, Society, and Social Change; 216, Change and Social Movements in the Sixties; 218, Tourism, Culture, and Place; 224, Women and the Law; 225, Women and Social Activism; 228, Cultural Consumption and Audiences; 230, The Family; 231, Criminology; 232, Delinquency and Juvenile Justice; 234, Prison Life; 235, Contemporary American Society; 237, Society and Medicine; 246, Sociology of Religion; 248, Popular Culture Dynamics; 249, American Social Movements; 250, Gender in Society; 251, Women and Public Policy in America; 254, Schools and Society: The Sociology of Education; 255, Racial and Ethnic Minorities in the United States; 272, Gender Identities, Interactions, and Relationships; 274, Immigration in America; 294, Seminars in Selected Topics (when an American topic is offered).

AREA C: INTERDISCIPLINARY PROGRAMS

AFRICAN AMERICAN AND DIASPORA STUDIES: 101, Introduction to African American and Diaspora Studies; 110, Race Matters; 201, African American Family History; 202, Mystery, Murder, and Mayhem in Black Detective Fiction; 208W, Soul Food as Text in Text: An Examination of African American Foodways; 210, Black Masculinity: Social Imagery and Public Policy; 215, Black Issues in Education; 221, History and Myth: Black Women in the United States; 265, Twentieth-Century African American Biography.

AMERICAN STUDIES: 100, 100W, Introduction to American Studies; 115F, First-Year Writing Seminar; 202, Global Perspectives on the U.S.; 240, Topics in American Studies; 280a, Internship Readings and Research; 289a, Independent Readings and Research; 289b, Independent Readings and Research; 294, The American Studies Workshop; 295, Undergraduate Seminar in American Studies; 297, Senior Project; 298, Senior Honors Research; 299, Senior Honors Thesis.

FILM STUDIES: 125, Introduction to the Study of Film.

JEWISH STUDIES: 138/138W, Jewish Humor; 139W, American Jewish Music; 155, American Jewish Life; 252, Social Movements in Modern Jewish Life; 280, Contemporary Jewish Issues; 294, Special Topics.

LATIN AMERICAN STUDIES: 260, Latin America, Latinos, and the United States.

MEDICINE, HEALTH, AND SOCIETY: 201, Fundamental Issues in Medicine, Health, and Society; 203, U.S. Public Health Ethics and Policy; 225, Death and Dying in America; 238, Pharmaceuticals, Politics, and Culture; 290, Special Topics.

WOMEN'S AND GENDER STUDIES: 243, Sociologies of Men and Masculinity; 246W, Women's Rights, Women's Wrongs; 248, Humor and Cultural Critique in Fannie Flagg's Novels; 249, Women and Humor in the Age of Television; 250, 250W, Contemporary Women's Movements; 259, 259W, Reading and Writing Lives; 268, Gender, Race, Justice, and the Environment; 271, Feminist Legal Theory; 294a, Special Topics: Topics in Gender, Culture, and Representation; 295, Selected Topics (when an American topic is offered).

Course descriptions begin on page 165.

Anthropology

CHAIR (On leave) Beth A. Conklin
ACTING CHAIR William R. Fowler Jr.
DIRECTOR OF UNDERGRADUATE STUDIES Steven A. Wernke
DIRECTOR OF GRADUATE STUDIES John W. Janusek
PROFESSORS EMERITI Thomas A. Gregor, Ronald Spores
PROFESSORS Arthur A. Demarest, Tom D. Dillehay, Edward F. Fischer, Lesley Gill
ASSOCIATE PROFESSORS Beth A. Conklin, William R. Fowler Jr., John W. Janusek, Norbert Ross, Tiffiny Tung, Steven A. Wernke
ASSISTANT PROFESSORS Carwil Bjork-James, Markus Eberl, Amy Non
SENIOR LECTURER Mareike Sattler

ANTHROPOLOGY is the study of human culture, biology, evolution, history, and language. The faculty in anthropology at Vanderbilt is internationally prominent in the study of Latin America. Faculty and teaching fellows participate in ongoing field research in Mexico, Central America, South America, and elsewhere.

Students majoring in anthropology take courses in several subfields of anthropology, each of which looks at humanity from a different perspective. These subfields include archaeology, the study of past cultures through their material remains; cultural anthropology, which examines the relationships, beliefs, values, and processes that shape human conduct; linguistics, which explores the interrelations between language and culture; and biological anthropology, which examines topics such as human evolution, genetics, and human biology. Anthropology students develop a broad understanding of cultural change and diversity and are encouraged to synthesize findings on the nature of human ways of life. This preparation is useful in all professional careers that involve understanding human behavior, cultural differences, or historical experience.

Program of Concentration in Anthropology

The major in anthropology requires completion of at least 30 credit hours of course work, as follows:

1. At least three 100-level surveys (chosen from Anthropology 101, 103, 104, and 105) covering the four subfields of anthropology: cultural anthropology, biological anthropology, archaeology, and linguistic anthropology.
2. A minimum of three credit hours from each of the groups below:

   Group I—Comparative Anthropology and Anthropological Theory: 205, 206, 207, 209, 222, 224, 225, 226, 232, 234, 240, 250, 260, 262, 267, 282, 283, 284, 286

   Group II—Archaeology and Biological Anthropology: 211, 212, 213, 215, 216, 231, 241, 242, 244, 246, 248, 252, 254, 270, 272, 273, 274, 279, 280, 281

   Group III—Ethnography, Ethnohistory, and Linguistics: 201, 203, 208, 210, 219, 231, 246, 247, 249, 275

3. A seminar on anthropological theory (206 or 284). The seminar may not also be used to count toward Group I credit above.
4. At least 18 credit hours must be at the 200 level.
5. The remainder of the credit hours must be chosen from ANTH courses not already used to satisfy the requirements listed above.

6. 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 are 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 165, 220; Biological Sciences 205; History 127, 249; History of Art 268; Human and Organizational Development 2660; Latin American Studies 231, 260; Mathematics 127a, 127b; Medicine, Health, and Society 212; Music Literature 160, 171, 231, 250; Religious Studies 130, 254; Sociology 201, 206, 207, 221, 230, 270, 277, 279; Spanish 221.

Honors Program

The Honors Program in Anthropology is designed to afford superior students the opportunity to pursue more intensive work within the major field. Students who want to do honors work in anthropology should contact the director of the Honors Program in the fall of their junior year. The completion of the Honors Program requires: a) 4–5 credits in Anthropology 298 (Honors Research), evaluated by honors thesis adviser, b) 4–5 credits in Anthropology 299 (Honors Thesis), evaluated by honors thesis adviser, c) submission of a written thesis, evaluated by the student's honors committee, d) an oral presentation of the thesis (15–20) minutes, evaluated by the student's honors committee, e) an oral examination of the thesis, administered by the student's honors committee. The independent research hours are expected to be in excess of the 30 hours required for the anthropology major.

Minor in Anthropology

The minor in anthropology requires 18 credit hours of course work that includes any two of the introductory courses: ANTH 101, 103, 104, 105; one course listed in Group I in the major; and three additional courses from any combination of the courses listed in Group I, II, and III in the major.

Course descriptions begin on page 166.

Arabic

SENIOR LECTURER 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.

Course descriptions begin on page 168.

Art

CHAIR Mel Ziegler
DIRECTOR OF UNDERGRADUATE STUDIES Mark Hosford
PROFESSORS Michael L. Aurbach, Marilyn L. Murphy, Mel Ziegler
ASSOCIATE PROFESSOR Mark Hosford
ASSISTANT PROFESSOR Vesna Pavlovic
SENIOR LECTURERS Farrar Hood Cusomato, Susan DeMay, Jana Harper, Mark Scala

Affiliated Faculty
ASSOCIATE PROFESSOR Paul Young (English)
ASSISTANT PROFESSOR Jonathan Rattner (Film)

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.

Many students will use the program in art as a foundation for careers in which creativity and the visual 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. Recently a student-run art gallery opened. A new art club called Viral Student Group has begun. BLUEprint is an organization for students interested in entering the field of architecture. Our Space 204 arts laboratory has exhibitions and workshops all year long. 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.

There are several campus organizations in the arts. The Sarratt Visual Arts Committee allows students to have a hand in curating and hanging exhibitions, as well as hosting art openings at the Sarratt Gallery. VISION sponsors lectures and discussions about the history of art as well as a roundtable of alumni majors, who discuss their current careers and how they arrived at them.

Since 1984 the department has supervised the awarding of the Margaret Stonewall Wooldridge Hamblet Award to an eligible senior student. The Hamblet Award provides the means for travel and independent art activity for one year, culminating in a one-person exhibition at Vanderbilt. Students wanting to participate in the spring competition must be graduating seniors who are studio art majors.

The Allan P. Deloach Memorial Prize in Photography was established in 2000 in memory of Allan Deloach (B.A. '63) 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 recently established Plaza Artists Materials award is given to four students each year. All competitions are judged by outside professional artists.

Program of Concentration in Art

The art major requires 36 credit hours and presents our 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 media, installation, and social interactive art practice. Our diverse faculty of artist/educators represents 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 the 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. ARTS 285, Maymester Contemporary Art Blitz, offers an opportunity to study contemporary art in a concentrated manner.

Requirements for the Program of Concentration in Art

Drawing Requirement (6 credit hours)

- *Options:* ARTS 102, 202, 203, 205, 207, or 208

Studio Requirements (15 credit hours), which must include at least:

- One 2-D course (ARTS 110, 111, 112, 120, 121, 122, 130, 210, 211, 220, 221, 222, 230, 231)
- One 3-D course (ARTS 140, 141, 150, 151, 152, 240, 241, 250)
- One time-based course (ARTS 171, 172, 173, 271, 272, 273)
- Within the 15 credit hours, students must take one 200-level ARTS course.

Related Requirement (9 credit hours), which must include each of the following:

- Either HART 110 or 111 (suggested for entry into 200-level ARTS courses)
- *One course from the following:* ARTS 180, 285, 288, HART 231, 242, FILM 125, 201, PHIL 241
- One additional 200-level History of Art (HART) course

Directed Study (6 credit hours)

- *ARTS 290, Directed Study: Senior Show and Contemporary Practices*
- *ARTS 291, Independent Research: Senior Show*

Majors are required to complete the Independent Research course, ARTS 291, their senior year. This course is designed specifically to help prepare majors for their Senior Show. For this reason, it is typically taken in the spring 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 excelling art majors the opportunity to pursue their interest at a higher level. To be admitted to the Honors Program in Art, students must have:

- At least a 3.25 cumulative GPA.
- At least a 3.5 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 of 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. Successful completion of either ARTS 180 Sources of Contemporary Art or ARTS 285 Maymester Contemporary Art Blitz.
3. Successful completion of a senior exhibition.
4. During the senior year the student is required to register for ARTS 299a (3 credit hours) in the first semester and 299b (3 credit hours) in the second semester in order to complete a written thesis, expanding concepts explored in the senior exhibition.
5. Successful oral defense of the thesis and senior exhibition during the final semester of undergraduate study.
6. At least a final 3.25 cumulative GPA.
7. 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 111 (History of Western Art: Renaissance to Modern), ARTS 102 (Drawing and Composition I), and four other ARTS courses, with at least one at the 200 level.

Course descriptions begin on page 169.

Asian Studies

DIRECTOR Ruth Rogaski
PROFESSOR Robert Campany
ASSISTANT PROFESSOR Ben Tran
SENIOR LECTURERS Xianmin Liu, Keiko Nakajima
LECTURERS Yinghui Guo, Jing Liu, Michiru Lowe, Qing Wei

Affiliated Faculty
PROFESSOR Tony K. Stewart (Religious Studies)
RESEARCH PROFESSOR James Auer (Center for U.S.–Japan Studies)
ASSOCIATE PROFESSORS Brett Benson (Political Science), Gerald Figal (History), Yoshikuni Igarashi (History), Tracy Miller (History of Art), Ruth Rogaski (History)
ASSISTANT PROFESSORS Nancy Lin (Religious Studies), Peter Lorge (History), Bryan Lowe (Religious Studies), Cecilia Mo (Political Science), Samira Sheikh (History), Lijun Song (Sociology and Medicine, Health, and Society)

THE Asian Studies program provides students a solid foundation in the languages and cultures of Asia. Our curriculum prepares interested individuals to pursue a career within the rapidly developing marketplace that is Asia or to go on to graduate study in an Asia-related topic. The program currently

offers a wide variety of courses in the areas of East Asia, South Asia, and Southeast Asia. Through their teaching and research, the affiliated faculty members promote a better understanding of the Asian experience and Asia's relationship with the rest of the world, past and present.

The major in Asian studies requires a minimum of 36 hours of course work designed to ensure that graduates have both depth and breadth in their understanding of Asia. Based in the intensive study of a modern Asian language, the program is expanded through courses in the economics, history, politics, religion, sociology, and visual culture of Asia. Students are also required to complete two courses that emphasizes the region of Asia outside of the primary language area to acquire a multifaceted perspective on Asian culture. We strongly recommend that students study abroad in Asia for at least one semester in a Vanderbilt-approved study abroad program.

The Asian studies major is divided into programs that emphasize a specific region. Course work is distributed as follows:

1. One of the following concentrations centered on the study of a modern language.

   Language course work must accomplish proficiency through the first semester of third year in at least one Asian language. We encourage students to take more advanced language classes and study abroad; however, the required first semester third year language course (or above) and the six hours of specialization courses must be taken at Vanderbilt.

   Program A. China

   i. Language (18 hours)

   Required Courses: CHINESE 241 Advanced Chinese I (or above; one advanced language course (241 or above) must be taken at Vanderbilt)

   Elective Courses: CHINESE 202, 211–212, 225–226, 231, 242, 251–252, 253, 254, 255–256, 289a–289b

   ii. Specialization (6 hours from the following, must be taken at Vanderbilt)

   ASIAN STUDIES: 230, 233
   HISTORY: 106, 107, 202, 203, 286e
   HISTORY OF ART: 249, 252
   MEDICINE, HEALTH, AND SOCIETY: 231
   POLITICAL SCIENCE: 216
   RELIGIOUS STUDIES: 135, 247, 269, 275

   Program B. Japan

   i. Language (18 hours)

   Required courses: JAPANESE 241, Third-Year Japanese I (or above; one advanced language course (241 or above) must be taken at Vanderbilt)

   Elective courses: JAPANESE 202, 211, 212, 232, 242, 251, 252, 289a–289b

   ii. Specialization (6 hours from the following, must be taken at Vanderbilt)

   ASIAN STUDIES: 211, 212, 213W, 240
   HISTORY: 108, 109, 188a, 205, 206
   HISTORY OF ART: 251, 253
   RELIGIOUS STUDIES: 136

   Other Asia-related writing seminars (including First-Year Writing Seminars), selected topics, and advanced seminars may fulfill this category with permission of the director of the Asian Studies program.

2. Perspectives (6 hours)

   Two Asian Studies approved courses that emphasize Asia as a region. The courses currently offered that satisfy this requirement are:

   ASIAN STUDIES: 150, 200W, 251
   HISTORY: 105, 204, 212a
   HISTORY OF ART: 120, 122, 125, 246, 251
   HUMAN AND ORGANIZATIONAL DEVELOPMENT: 2445, 2480 (or 2490)
   RELIGIOUS STUDIES: 253

3. Electives (6 hours)

   Two courses selected from the list of approved courses for the Asian studies major. Other Asia-related courses not listed below—such as those in study abroad programs, First-Year Writing Seminars, Selected Topics, Senior Seminars, and Independent Studies—may be applied toward the major upon approval by the director of the Asian Studies program.

   Approved courses by subject area are as follows:

ASIAN STUDIES: 115F, First-Year Writing Seminar; 150, Writing Southeast Asia; 200W, Fashioning the Self: Coming of Age and Asian Modernities; 211, Popular Culture in Modern Japan; 212, Explorations of Japanese Animation; 213W, Media Monsters in Contemporary Japan; 230, Chinese Medicine; 233, Self-Cultivation in Ancient China; 240, Current Japan–U.S. Relations; 250W, Hollywood Hanoi; 251, The Third World and Literature; 289a–289b, Independent Study; 294a–294b, Special Topics; 299a–299b, Honors Research.

CHINESE: 201, Elementary Chinese I; 202, Elementary Chinese II; 211, Intermediate Chinese I; 212, Intermediate Chinese II; 225, Chinese for Heritage Learners I; 226, Chinese for Heritage Learners II; 231, Calligraphy; 241, Advanced Chinese I; 242, Advanced Chinese II; 251, Readings in Modern Chinese Media; 252, Readings in Modern Chinese Media; 253, Classical Chinese Literature and Philosophy; 254, Readings in Modern Literary Chinese; 255, Business Chinese I; 256, Business Chinese II; 289a, Independent Study; 289b, Independent Study.

HISTORY: 105, East Asia since 1800; 106, Premodern China; 107, China from Empire to the People's Republic; 108, Premodern Japan; 109, Modern Japan; 116, Modern South Asia; 182, Sexuality and Gender in China; 188a, The Body in Modern Japanese Culture; 202, Themes in Modern Chinese History, 1966–1989; 203, Chinese Thought; 204, Crisis Simulation in East Asia; 205, Play and Pleasure in Early Modern Japan; 206, Post-WWII Japan; 211a, The Mughal World; 212a, India and the Indian Ocean; 286e, Christianity in China; 288d, Images of India.

HISTORY OF ART: 122, History of Asian Architecture; 249, The Arts of China during the Liao-Song Period; 251, East Asian Architecture and Gardens; 252, Arts of China; 253, Arts of Japan.

JAPANESE: 200a, Introductory Modern Japanese I; 200b, Introductory Modern Japanese II; 201, Beginning Modern Japanese I; 202, Beginning Modern Japanese II; 211, Second-Year Modern Japanese I; 212, Second-Year Modern Japanese II; 232, Japanese through Manga; 241, Third-Year Japanese I; 242, Third-Year Japanese II; 251, Fourth-Year Japanese I; 252, Fourth Year Japanese II.

MEDICINE, HEALTH, AND SOCIETY: 231, Chinese Society and Medicine.

POLITICAL SCIENCE: 216, The Chinese Political System.

RELIGIOUS STUDIES: 135, Religions in China; 136, Religions of Japan; 244, Buddhist Traditions; 247, Daoist Tradition; 250, Classical Philosophies of India; 253, East Asian Buddhism; 264, Foundations of Hindu Traditions; 265, Mythologies and Epics of South Asia; 269, Sacred Space in the Tibetan World; 275, Chinese Religions Through Stories.

Certain courses offered in the CET program, CIEE program in China, and the Rikkyo Program in Japan can also be

used to satisfy this portion of the major. Courses from other approved study abroad programs may be used to satisfy this requirement with permission of the director.

Honors Program in Asian Studies

In addition to following the requirements set by the College of Arts and Science, the following requirements must be met:

1. All of the requirements for the 36 hour major in Asian studies.
2. One advanced seminar (junior or senior level, 3 credit hours) on an Asia-related topic approved by the Asian Studies program director.
3. A minimum of one semester of study (or the summer session) at an approved study abroad program in a country where the official language is an Asian language.
4. A minimum 3.25 cumulative grade point average with a minimum 3.5 grade point average in Asian studies.
5. 6 hours of independent study thesis credit under ASIA 299a and 299b (Honors Thesis; must be taken while in residence at Vanderbilt). Successful completion of the two-semester independent study results in the production of an honors thesis, usually a final paper or project defined by the faculty adviser and approved, in advance, by the honors committee (see below for definition of honors committee).
6. An oral examination on the thesis and its area; usually this will happen within the two months prior to graduation.

A three-member Honors Committee of Asian Studies core or affiliated faculty 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. If the student is studying abroad that semester, the proposed thesis topic should be submitted in the first semester of the junior year. The committee will set guidelines for the thesis topic proposal, publish deadlines each year, and administer the oral examination.

Minor in Asian Studies

The minor in Asian studies requires a minimum of 19 hours of course work and provides a broad knowledge of the languages, literatures, politics, histories, arts, and religions of China and Japan. Chinese 200a–200b and 201–202 and Japanese 200a–200b and 201–202 do not count toward the minor.

Students electing two or more minors in Asian studies must present at least 15 credit hours in each minor not being counted toward any other minor or major.

1. Required courses (6 hours):
   History 105 or 106 or 107 and History 108 or 109.

2. Elective courses (at least 13 hours):
   Students must fulfill the remaining hours with courses from the following list, selecting at least one from each of A, B, and C:

   Group A: Asian Studies 240; History 105, 106, 107, 108, 109, 116, 202, 205, 206, 212a; Medicine, Health, and Society 231; Political Science 216.

   Group B: Asian Studies 150, 200W, 211, 212, 250W, 251; History 203, 288d; History of Art 122, 251, 252, 253; Religious Studies 135, 136, 247, 275.

   Group C: Chinese 211 (5 hours), 212 (5 hours), 225, 226, 241, 242, 251, 252, 253, 254, 255, 256; Japanese 211 (5 hours), 212 (5 hours), 232, 241, 242, 251, 252.

Other Asia-related courses not listed here—such as those in study abroad programs, First-Year Writing Seminars, Selected Topics, Senior Seminars, and Independent Studies—may be applied toward the minor upon approval by the director of the Asian Studies program.

Minor in Chinese Language and Culture

The minor in Chinese language and culture requires a minimum of 18 hours of course work, anchored by a firm foundation in language study that is complemented by electives in art, history, literature, film, politics, and religion. Chinese 200a–200b and 201–202 do not count toward the minor. Students pursuing two or more minors in Asian studies must present at least 15 credit hours in each minor not being counted toward any other minor or major.

1. Required courses:
   Either CHINESE 211, 212, and 241 (or above; one advanced language course 241 or above must be taken at Vanderbilt) (13 hours) or CHINESE 225, 226, and 241 (or above; one advanced language course (241 or above) must be taken at Vanderbilt) (9 hours)

2. Elective courses (minimum 6 hours):
   ASIAN STUDIES 200W, 230, 233
   HISTORY 105, 106, 107, 202, 203, 204, 286e
   HISTORY OF ART 120, 122, 249, 251, 252
   MEDICINE, HEALTH, AND SOCIETY 231
   POLITICAL SCIENCE 216
   RELIGIOUS STUDIES 135, 247, 269, 275

Other China-related courses not listed here—such as those in study abroad programs, First-Year Writing Seminars, Selected Topics, Senior Seminars, and Independent Studies—may be applied toward the minor upon approval by the director of the Asian Studies program.

Minor in Japanese Language and Culture

The minor in Japanese language and culture requires a minimum of 19 hours of course work, anchored by a firm foundation in language study that is complemented by electives in art, history, literature, film, politics, and religion. Japanese 201 and 202 do not count toward the minor. Students pursuing two or more minors in Asian studies must present at least 15 credit hours in each minor not being counted toward any other minor or major.

1. Required courses (13 hours):
   JAPANESE 211, 212, and 241 (or above; one advanced language course (241 or above) must be taken at Vanderbilt)

2. Elective courses (minimum 6 hours):
   ASIAN STUDIES 200W, 211, 212, 213W, 240
   HISTORY 105, 108, 109, 188a, 205, 206
   HISTORY OF ART 120, 122, 251, 253
   RELIGIOUS STUDIES 136

Other Japan-related courses not listed here—such as those in study abroad programs, First-Year Writing Seminars, Selected Topics, Senior Seminars, and Independent Studies—may be

applied toward the minor upon approval by the director of the Asian Studies program.

Asian Studies

Course descriptions begin on page 170.

Chinese

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.

Course descriptions begin on page 174.

Japanese

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.

Course descriptions begin on page 198.

Biological Sciences

CHAIR Charles K. Singleton
DIRECTOR OF UNDERGRADUATE STUDIES David E. McCauley
DIRECTOR OF GRADUATE STUDIES Katherine L. Friedman
PROFESSORS EMERITI Burton J. Bogitsh, Clint E. Carter, Sidney Fleischer, Robert Kral, Wallace M. LeStourgeon, Oscar Touster, Dean P. Whittier, Robley C. Williams Jr.
PROFESSORS Kendal S. Broadie, Kenneth C. Catania, Ellen Fanning, Todd R. Graham, Carl H. Johnson, Owen D. Jones, David E. McCauley, Douglas G. McMahon, David M. Miller, Terry L. Page, James G. Patton, Charles K. Singleton, Gerald J. Stubbs, Laurence J. Zwiebel
RESEARCH PROFESSOR Hans-Willi Honegger
ASSOCIATE PROFESSORS D. Kilpatrick Abbot, Seth R. Bordenstein, Chang Chung, Brandt F. Eichman, Katherine L. Friedman, Daniel J. Funk, Joshua T. Gamse, Antonis Rokas, Louise Rollins-Smith, Donna J. Webb
RESEARCH ASSOCIATE PROFESSOR Yao Xu
ASSISTANT PROFESSORS Julian F. Hillyer, Chris Janetopoulos, Maria Luisa Jorge
RESEARCH ASSISTANT PROFESSORS Wen Bian, Cheryl Gatto, Tetsuya Mori, Jason Pitts, Jennifer Ufnar
SENIOR LECTURERS Steve J. Baskauf, Amanda R. Benson, Cynthia T. Brame, A. Denise Due-Goodwin, Mark A. Woelfle

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, though 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 and of toxicology. The Ecology, Evolution, and Organismal Biology (EEOB) major is designed for students with an interest in ecology, evolutionary biology, environmental biology, and conservation biology. The department also offers a minor in biological sciences for students majoring in other disciplines. Interested students should consult the appropriate 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: *http://sitemason.vanderbilt.edu/biosci.*

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 102a–102b and 104a–104b) and two semesters of organic chemistry and lab (Chemistry 219a–219b and 220a–220b). It is strongly recommended that students in all three majors take one year of calculus or calculus/statistics and one year of physics. A total of 30 hours of Biological Sciences courses, including the 8 hours of 110a–110b and 111a and either 111b or 111c, are required in all majors. All Biological Sciences courses count toward the major except 100, 105, and 115F. 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, & 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: 201, 202, 205, 210, 211, 218, 219, 220, 237, 238).

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.

For honors in all three majors, additional requirements must be met: (a) normally a minimum GPA of 3.25 in courses that count toward the major; (b) at least 10 of the 30 hours of Biological Sciences course work must be directed/independent research with a minimum of 8 hours being honors research (BSCI 296); (c) an honors thesis and oral defense. For students in the MCB major, 265 or 266 must be taken for 3 credit hours; an alternate advanced course may be substituted with the permission of the

director of undergraduate studies. For students in the EEOB major, one of the following courses must be taken for 3 credit hours: 230, 234, 238, 247, 270, 272. For the BioSci major, at least two lecture courses must be from the following for 3 credit hours: 230, 234, 236, 243, 245, 247, 252, 254, 256, 265, 266, 270.

Program of Concentration in Biological Sciences (BioSci)

At least 30 hours satisfying the general requirements above, and including the following:

1. Introductory Courses: 110a/111a and 110b/111b or 111c
2. Intermediate Courses:
   a. 205, 210
   b. one additional intermediate course: 201, 218, 219, 220, or 238
3. Laboratory: Two laboratory courses (202, 211, 218, 219, or 237), or one lab course and two semesters of directed and/or independent research (BSCI 283, 286, 296).
4. Seminar/Independent Studies: A minimum of 2 credit hours of 275a–275b, 282, 283, 286, or 296 is required. Only one seminar course (275) may count toward the major. A total of no more than 6 credit hours of 282, 283, and 286 may be counted toward the major.

For students intending to perform honors research, at least two lecture courses must be from the following: 230, 233, 234, 236, 243, 245, 247, 252, 254, 256, 265, 266, 270, 272.

Program of Concentration in Molecular and Cellular Biology (MCB)

At least 30 hours satisfying the general requirements above, and including the following:

1. Introductory Courses: 110a/111a, 110b/111b or 111c
2. Intermediate Courses: 201, 210, 220, and either 202 or 211
3. Laboratory: One additional laboratory course (202, 211, 218, 219, or 237), or two semesters of directed and/or independent research (BSCI 283, 286, 296).
4. Seminar/Independent Studies: A minimum of 2 credit hours of 275, 282, 283, 286, or 296 is required. Only one seminar course (275a–275b) may count toward the major. A total of no more than 6 credit hours of 282, 283, and 286 may be counted toward the major.

   Of the remaining courses, at least two must be from the following: 205, 230, 234, 236, 243, 245, 247, 252, 256, 265, 266, 272.

For students intending to perform honors research in the MCB major, 265 or 266 must be taken; an alternate advanced lecture course may be substituted with the permission of the director of undergraduate studies.

Program of Concentration in Ecology, Evolution, and Organismal Biology (EEOB)

At least 30 hours satisfying the general requirements above, and including the following:

1. Introductory Courses: 110a/111a and 110b/111b or 111c
2. Intermediate Courses: 205 and 210; and either 218 or 219 or 238. If a student takes 238 and neither 218 nor 219, then either 211 or 237 will be required as well.
3. Laboratory: One additional laboratory course (202, 211, 218, 219, or 237), or two semesters of directed and/or independent research (BSCI 283, 286, 296).
4. Seminar/Independent Studies: A minimum of 2 credit hours of 275a–275b, 282, 283, 286, or 296 is required. Only one seminar course (275) may count toward the major. A total of no more than 6 credit hours of 282, 283, and 286 may be counted toward the major.

   Of the remaining courses, at least two must be from the following: 230, 233, 234, 236, 239, 247, 266, 270, 272; or 218, 219, or 238 if not used for the intermediate course requirement.

For students intending to perform honors research in the EEOB major, one of the following courses must be taken: 230, 234, 236, 247, 270, 272.

Minor in Biological Sciences

A minor in biological sciences requires a minimum of 18 hours that include BSCI 110a–110b; 111a and either 111b or 111c; 210; and one other intermediate course. No more than two credit hours of 280, 282, 283, and 286 may be counted toward the minor.

Course descriptions begin on page 171.

Chemistry

CHAIR Michael P. Stone
DIRECTOR OF UNDERGRADUATE STUDIES Adam K. List
DIRECTOR OF GRADUATE STUDIES Carmelo J. Rizzo
PROFESSORS EMERITI Robert V. Dilts, Larry C. Hall, Thomas M. Harris, David M. Hercules, Melvin D. Joesten, Mark M. Jones, David L. Tuleen, David J. Wilson
PROFESSORS Richard N. Armstrong, Darryl J. Bornhop, Richard M. Caprioli, Walter J. Chazin, Stephen P. Fesik, Timothy P. Hanusa, B. Andes Hess Jr., Jeffrey N. Johnston, Craig W. Lindsley, Charles M. Lukehart, Terry P. Lybrand, Lawrence J. Marnett, Hassane S. Mchaourab, Prasad L. Polavarapu, Carmelo J. Rizzo, Sandra J. Rosenthal, Michael P. Stone, Gary A. Sulikowski, Joel Tellinghuisen, David W. Wright
RESEARCH PROFESSORS Thomas M. Harris, David M. Hercules, Ned A. Porter
ADJOINT PROFESSOR Lidia Smentek
ADJUNCT PROFESSOR James N. Lowe
ASSOCIATE PROFESSORS Brian O. Bachmann, David E. Cliffel, James H. Dickerson, Eva M. Harth, Piotr Kaszynski, John A. McLean, Jens Meiler, Sean B. Seymore
RESEARCH ASSOCIATE PROFESSORS Donald F. Stec, Libin Xu, Huiyong Yin
ADJOINT ASSOCIATE PROFESSOR Joshua T. Moore
ADJUNCT ASSOCIATE PROFESSOR Norma K. Dunlap
ASSISTANT PROFESSOR Janet E. Macdonald
RESEARCH ASSISTANT PROFESSORS Joseph A. Conrad, Kyle A. Emmitte, Hye-Young Kim, Kwangho Kim, Dmitry Koktysh, Amanda K. Kussrow, Jody C. May, Janel R. McLean, Keri A. Tallman, Ian D. Tomlinson, Markus W. Voehler, Alex G. Waterson, Michael W. Wood
ADJOINT ASSISTANT PROFESSOR Natalie Y. Arnett
SENIOR LECTURERS Adam K. List, Shawn T. Phillips, Michelle M. Sulikowski, Tara D. Todd, Grace Zoorob
LECTURER Andrzej Balinski

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 102a–102b and 104a–104b 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 (210), biochemistry (BSCI 220), inorganic (203), organic (220a–220b or 218a–218b), and physical (230 or 231). The third part of the chemistry major consists of completing 8 credit hours of laboratory past 104a–104b. Four hours are from laboratory courses (219a–219b, 212a, and 236) associated with foundation courses. There are also 6 credit hours of a capstone laboratory (295a–295b) 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.

Concentration in Chemistry

Required Non-chemistry Courses
One year of calculus (MATH 155a–155b is preferred)
PHYS: Both 113a–113b and 114a–114b, or both 116a–116b and 118a–118b, or 121a–121b

Required Chemistry Courses	Hours toward major
Chem 102a–102b & 104a–104b or AP credit	0
Chem 220a–220b (or 218a–218b) & 219a–219b	8
Chem 210 & 212a	4
Chem 230 or 231	3
Chem 236	1
BSCI 220	3
Chem 203	3
*Two in-depth chemistry courses	6
Chem 295a–295b	6
Minimum Hours for Chemistry Major	34

* In-depth chemistry courses include all 200-level chemistry courses not explicitly required, except for Chem 250 and 292a–292b–292c. Other in-depth chemistry courses are Chemical and Biomolecular Engineering 223 and 225, and Earth and Environmental Sciences 260, and any 300-level chemistry lecture courses. (Qualified seniors interested in 300-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 (282) may be counted as in-depth chemistry course hours.

Additional math courses, such as Math 175 and Math 218, 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: 202, 220c, 224, 226, 282.

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: 211, 230, 231, 282.

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: 211, 230, 231, 282, EES 260.

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: 211, 222, 230, 231, 235, 240, 282, 338, 350a, 350b.

Minor in Chemistry

The minor in chemistry requires 18 hours of course work, including 4 hours from 102b and 104b or AP credit, and 14 hours selected from any of the courses acceptable for the major in chemistry.

Honors in Chemistry

Students with an overall GPA of at least 3.0 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 292a, 292b, 292c—each is 2 credit hours) beginning spring semester junior year. The Chem 295a and 295b requirements are waived in lieu of the Chem 292a, 292b, and 292c registrations. Honors candidates must present a thesis on the research done under Chem 292a, 292b, and 292c 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 295a–295b 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 101a–101b. 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 102a–102b. Designed for engineering, science, and premedical students. This course, which must be taken simultaneously with 104a–104b, 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.

Course descriptions begin on page 173.

Classical Studies

CHAIR Thomas A. J. McGinn
DIRECTOR OF UNDERGRADUATE STUDIES Daniel P. Solomon
DIRECTOR OF GRADUATE STUDIES Barbara Tsakirgis
PROFESSORS EMERITI Robert Drews, F. Carter Philips, Susan Ford Wiltshire
PROFESSORS Thomas A. J. McGinn, Jack M. Sasson, David J. Wasserstein
ASSOCIATE PROFESSORS Kathy L. Gaca, Joseph L. Rife, Betsey Robinson, Barbara Tsakirgis
ASSISTANT PROFESSORS Scott F. Aikin, Michael Johnson, Mireille Lee, David A. Michelson, David E. Petrain
SENIOR LECTURERS Max L. Goldman, Daniel P. Solomon

CLASSICAL studies have always been at the heart of a liberal education because they afford unmatched perspectives from which to understand our own time. Courses are offered in the history, religion, art, philosophy, social and cultural issues, literature, and mythology of the ancient world. The curriculum covers 3,500 years of human experience in the ancient Near East, Greece, and Roman Europe, from the beginnings of Western civilization through the Christianization of Europe.

Three major programs are available. Students may declare only one of the majors offered by the Department of Classical Studies; double or triple majors within the department are not permitted. Students majoring in classical languages approach the ancient world primarily through its literature, read in the original language. Students majoring in classics integrate the ancient texts with other kinds of evidence (sociology, religion, art, etc.), in order to compare the words of Greeks and Romans to their actions; they may apply any number of courses in Greek and/or Latin toward this major, as long as two language courses are at the advanced level. Students majoring in classical civilization receive the broadest introduction to the ancient world, and they read the primary sources in translation.

Majors in classical languages or classics are encouraged to spend a semester at the Intercollegiate Center for Classical Studies in Rome. A summer program at the American School of Classical Studies in Athens is also available.

The Classics Society functions as the department's extracurricular organization. Eta Sigma Phi is the national honorary society for classics.

Program of Concentration in Classical Languages

Students complete 32 hours in Greek and Latin. Those who want to concentrate in one language must also complete at least two semesters' work in the other, although credit toward the 32-hour requirement will be given for only one of the elementary sequences (*either* Greek 201–202 *or* Latin 100 *or* 101–102).

Program of Concentration in Classics

Students complete at least 30 hours in classics, Greek, Latin, or eligible courses in ancient philosophy or history of art (see below), at least 6 hours of which must be in Greek courses numbered above 204 or in Latin courses numbered above 104.

Program of Concentration in Classical Civilization

Students complete at least 30 hours in classics, Greek, Latin, or eligible courses in ancient philosophy *or* history of art (see below). Relevant courses in religion will be allowed at the discretion of the DUS. No more than 11 hours may be taken at the 100 level.

The following courses may be counted toward a major in classics or classical civilization: History of Art 115F-09, 264, 266, and 268; Jewish Studies 122; Philosophy 210 and 218. Other courses may be counted with the approval of the director of undergraduate studies, but a minimum of 18 hours must be in courses from Classics, Greek, and/or Latin.

Honors Program in Classics and in Classical Languages

Admission requirements are: completion of junior year and completion of at least 6 hours of work in advanced Greek or Latin courses (above Greek 204 or Latin 104), and an overall GPA of 3.4, with 3.5 in courses within the department (including hours earned at the ICCS in Rome). In order to graduate with departmental honors, a student must (in addition to maintaining the stated GPA through the senior year) satisfy the following requirements:

1. Complete 12 hours of work beyond the intermediate level in Latin and/or Greek for honors in classics, and 18 hours for honors in classical languages.
2. Demonstrate competence in Greek or Roman history and archaeology, either by successfully completing the ICCS program in Rome or by completing 3 credit hours in one of the department's survey courses in art and archaeology (Classics 204, 205, 206) and 3 credit hours in one course in history (Classics 208, 209, 212, 213).
3. Write a senior thesis, and defend it before the department, for either 3 or 6 hours credit. Candidates choosing the

three-hour option for the thesis must complete one of the department's graduate seminars.

There is no Honors Program in the classical civilization concentration.

Minor in Classics

Students are required to complete Latin 104 or Greek 204 or a higher-level language course plus an additional 15 hours in courses that count toward the concentration in classics, of which at least 9 must be at the 200 level. Other courses may be counted with the approval of the director of undergraduate studies, but a minimum of 12 hours must be in courses from Classics, Greek, and/or Latin.

Minor in Classical Civilization

Students are required to complete 18 hours in courses that count toward the concentration in classical civilization, of which at least 12 must be at the 200 level. Other courses may be counted with the approval of the director of undergraduate studies, but a minimum of 12 hours must be in courses from Classics, Greek, and/or Latin.

Licensure for Teaching

Candidates for teacher licensure in Latin at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Classics

Courses below the 300 level require no knowledge of either Greek or Latin.

Course descriptions begin on page 175.

Greek

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.

Course descriptions begin on page 189.

Latin

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.

Course descriptions begin on page 200.

Communication of Science and Technology

DIRECTOR David A. Weintraub

Affiliated Faculty
PROFESSORS Jay Clayton (English), David J. Ernst (Physics and Astronomy), Richard F. Haglund Jr. (Physics and Astronomy), Jeffrey D. Schall (Psychology), David A. Weintraub (Physics and Astronomy)
ASSOCIATE PROFESSOR Jonathan M. Gilligan (Earth and Environmental Sciences)
ASSISTANT PROFESSOR Ole Molvig (History)
ASSISTANT PROFESSOR OF THE PRACTICE OF ENGINERING Christopher Rowe (General Engineering)
LECTURER Stephen Ornes

THE study of the communication of science and technology is an interdisciplinary enterprise that draws upon the scientific, engineering, and communication, both oral and written, resources of Vanderbilt University. The program is designed for students who have an interest in science and technology and also are interested in how science and technology are communicated to the larger world outside science, engineering, and medicine.

Interested students should contact the director of the program, David A. Weintraub, Department of Physics and Astronomy.

Program of Concentration in Communication of Science and Technology

Students majoring in the communication of science and technology will be expected to complete a core of courses that are essential to understanding communication, as well as a coherent program of courses that provide scientific and engineering background. The major consists of either 38 or 39 hours.

A student may count as many as 6 hours as part of both this interdisciplinary major and a second major. A student may only include a maximum of 15 hours of 100-level course work, not including CSET 150 and all HIST courses.

1) Written and Oral Communications courses (9 credit hours from 3 courses)

Three courses, with a minimum 3 credit hours per course, as follows:

a. CSET 201 (Science Communication Tools and Techniques) or CSET 150 (Special Topics). If neither course is offered for two consecutive years, majors may, with approval of the program director, substitute a course from category '1c.'

b. One advanced public-speaking course: CMST 201 (Persuasion) or 204 (Organizational and Managerial Communication)

c. One advanced (200-level) "W" course from any of the following:

i. any 200-level "W" course from any Natural Science program (as used here, "Natural Science" includes all courses identified as "MNS" courses in AXLE except MATH and PHIL courses),

ii. any 200-level "W" course from any Engineering program,

iii. any 200-level "W" course from MHS,

iv. ENGL 200 (Intermediate Nonfiction Writing), 201

(Advanced Nonfiction Writing), or ENGL 243/243W (Literature, Science, and Technology).

2) *Natural Science and Engineering courses (15 credit hours from five courses)*

Five courses (minimum 3 credit hours per course), at least three of which must be 200-level Natural Science courses. (As used here, "Natural Science" includes all courses identified as MNS courses in AXLE except MATH and PHIL courses.) The other two courses may be 200-level Natural Science courses or courses taken at any level from the School of Engineering. Students will count 15 hours of Natural Science and/or Engineering courses toward this part of 38- or 39-hour requirement, even if they choose to take five 4-credit-hour courses. Engineering "research," "project," "design," "seminar," "independent study," and introductory programming courses (e.g., BME 240a, 240b, 241a, 241b, 272, 273; ChBE 233W, 246, 247, 249; CE 200a, 200b, 200c, 248, 249, 252a, 252b; CS 101, 103, 240a–240b; EECE 203, 204, 296, 297; ENGM 289, 290, ES 101, 103, 248, 249; MSE 209b, 209c, ME 209a, 209b, 209c, 243, 297; SC 295A, 295B, 295C) do not count toward this requirement. Students may count the three 1-credit-hour courses ES 140A, 140B, and 140C as equivalent to a single 3-credit-hour course if they earn credit for all three courses.

3) *Statistics (3 credit hours) selected from:*

ECON 150 (Economic Statistics), 155 (Intensive Economic Statistics)

MATH 127b (Probability and Statistical Inference), 216 (Probability and Statistics for Engineering), 218 (Introduction to Probability and Mathematical Statistics)

PSY 209 (Quantitative Methods)

PSY-PC 2101 (Introduction to Statistical Analysis)

PSY-PC 2102 (Statistical Analysis)

BME 260 (Analysis of Biomedical Data)

SOC 127 (Statistics for Social Scientists)

4) *One course bridging science, engineering, or medicine and health with non-science content and issues, including public policy courses and environmental courses (3 credit hours):*

ANTH 208 (Food Politics in America), 240 (Medical Anthropology), 241 (Biology and Culture of Race), 250 (Anthropology of Healing), 260 (Medicine, Culture, and the Body), 270 (Human Osteology), 274 (Health and Disease in Ancient Populations)

ASIA 230 (Chinese Medicine)

ASTR 203 (Theories of the Universe)

EES 205 (Science, Risk, and Policy)

ENGL 245 (Literature and the Environment)

HIST 148 (The Darwinian Revolution), 150 (History of Modern Sciences and Society), 151 (The Scientific Revolution), 280 (Modern Medicine), 281 (Women, Health, and Sexuality), 283 (Medicine, Culture, and the Body), 284a (Epidemics in History), 284b (Health and the African American Experience), 285W (Science, Technology, and Modernity)

MHS — any 200-level course below 290

PHIL 244 (Philosophy and the Natural Sciences)

PSCI 253 (Ethics and Public Policy), 255 (Public Policy Problems), 256 (Politics of Public Policy)

PSY 252 (Human Sexuality)

RLST 202 (Natural Science and the Religious Life), 221 (Ethics and Ecology), 241 (Religion, Science, and Evolution)

SOC 207 (Climate Change and Society), 208 (Environment and Development), 221 (Environmental Inequality and Justice), 237 (Society and Medicine), 270 (Human Ecology and Society)

WGS 240 (Introduction to Women's Health), 268 (Gender, Race, Justice, and the Environment), 270 (Ecofeminism: Theory, Politics, and Action)

5) *Electives (8 or 9 credit hours) chosen from:*

a. FILM 105 (Fundamentals of Film and Video Production), 125 (Introduction to the Study of Film), 175 (Intermediate Filmmaking: Alternate Forms), 176 (Intermediate Filmmaking: The Fiction Film), 227W (Screenwriting), 275W (Advanced Screenwriting), (no more than 2 courses)

b. category 1c (no more than 2 courses)

c. category 2 (no more than 2 courses)

d. category 4 (no more than 2 courses)

e. A combination of at least one hour of CSET 289 (Directed Study) and at least one hour of CSET 290 (Project in Science Writing and Communicating) may be counted together as a single elective course. No more than 3 hours of CSET 289 and 290 may count toward the major.

Internships

The off-campus internship program involves work in the national arena in such places as NASA, the Discovery Channel, the National Institutes of Health, CNN, and the American Chemical Society. If an internship involves course credit, credit will be given through Interdisciplinary Studies 280a–280b–280c–280d (1 hour each); they must be taken as P/F hours, and do not count toward the major.

Honors Program

CSET Honors is a selective program of individual undergraduate work, supervised by faculty advisers. Honors candidates propose, research, and write a thesis that demonstrates the ability to communicate science, in depth, to a nonscientific audience.

Requirements for Admission

To be admitted to the Honors Program in CSET, a student must

1) be a CSET major;
2) have completed at least 30 of the required hours for the CSET major;
3) have completed one semester of CSET 289 (1–3 credit hours) and one semester of CSET 290 (1–3 credit hours). With permission of the program director, students may substitute research experience taken for credit within a scientific or engineering program for CSET 289;
4) have a GPA of at least 3.20 in all work previously taken for credit;
5) have a GPA of at least 3.40 in all courses taken that count toward completion of the CSET major.

Requirements for Completion (minimum 39 credit hours)

To earn Honors or Highest Honors in CSET, a student must

1) complete the CSET major (minimum 38 credit hours);

2) complete at least one semester of CSET 296 (1–3 credit hours);

3) present an oral defense of the written CSET 296 thesis before a faculty examination committee;

4) have a GPA of at least 3.20 in all work taken for credit and 3.40 in all courses that count toward the CSET major.

Course of Study

Interested students may apply in the spring of their junior year or the fall of the senior year. Applicants must have completed CSET 289 (or the equivalent) and must have completed or be enrolled in CSET 290. 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.

Students in the Honors Program sign up for CSET 296 (Honors Thesis). Students may enroll in CSET 296 for one or two semesters, for up to 3 hours per semester.

The final thesis must be submitted no later than two weeks before the end of classes in the semester of graduation.

The oral defense of the thesis will take place one to two weeks after the final thesis is submitted. The examination committee is composed of the thesis supervisor and two additional faculty members, at least one of whom must be a faculty member affiliated with the CSET program. The oral defense 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 Highest Honors. Highest Honors is reserved for students with GPAs in the CSET major and overall above 3.50, whose theses are of near-publication quality, and whose oral defenses are at the highest level.

Minor in Communication of Science and Technology

The minor in the Communication of Science and Technology consists of seven courses, totaling a minimum of 21 hours, distributed as follows:

1) Written and Oral Communications courses (3 courses):

a. CSET 201 or CSET 150. If neither course is offered for two consecutive years, minors may, with approval of the program director, substitute a course from category "1c."

b. One advanced public-speaking course: CMST 201 or 204

c. One advanced (200-level) "W" course as defined in the rules for the CSET major

2) Natural Science and Engineering courses (4 courses):

a. One course bridging science, engineering, or medicine and health with non-science content and issues, including public policy courses and environmental courses (selected from list of courses for majors)

b. Three courses (minimum 3 credit hours per course) from engineering and/or the natural sciences, at least two of which must be 200-level Natural Science courses (as defined for the major). The other course may be a 200-level Natural Science course or a course taken at any level from the School of Engineering. Students may count 9 hours of Natural Science and/or Engineering courses toward this part of 21-hour requirement, even if they choose to take three 4-credit-hour courses. Students may count the 1-credit-hour courses ES 140A, 140B, and 140C as equivalent to a single 3-credit-hour course if they earn credit for all three courses.

Course descriptions begin on page 176.

Communication Studies

CHAIR Bonnie J. Dow
DIRECTOR OF UNDERGRADUATE STUDIES Kassian A. Kovalcheck
PROFESSOR EMERITUS Kassian A. Kovalcheck
PROFESSOR John M. Sloop
ASSOCIATE PROFESSORS Vanessa B. Beasley, Bonnie J. Dow
ASSISTANT PROFESSORS Claire Sisco King, Paul H. Stob
SENIOR LECTURERS Neil Butt, John H. English, Carole Freeman Kenner, M. L. Sandoz

THE Department of Communication Studies offers a major in communication studies. The major includes courses in such areas as rhetorical criticism, argumentation and debate, analysis of film and mass media, and the history and criticism of public address.

The Vanderbilt University Varsity Debate Team competes at national and regional levels. A full program of intercollegiate debate is available for students who choose to participate in forensics.

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 American 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 36 hours of course work. No more than 9 hours of 100-level courses may count toward the major. While students are permitted to use communication-related courses in other departments as part of the major, at least 24 of the 36 hours must be in communication studies. The requirements and options for the major are as follows.

1. Communication Studies 100 (required)
2. At least one of the following courses in performance: 200, 201, 204.
3. At least three of the following courses in criticism and theory: 210, 220, 221, 222, 225, 241.
4. At least three of the following courses in applications and analysis: 101, 115F, 223, 224, 226, 235, 243, 244, 254, 254W, 289, 290, 294, 295, 296.

The remainder of the 36 hours may be selected from the courses listed above or from the following:

Communication of Science and Technology: 201, Science Communication Tools and Techniques. English: 120W,

Intermediate Composition; 200, Intermediate Nonfiction Writing; 201, Advanced Nonfiction Writing. Film Studies: 201, Film Theory; 211, History of World Cinema. Managerial Studies: 190, Principles of Marketing; 191, Advanced Marketing. Philosophy: 102, General Logic; 202, Formal Logic and Its Applications; 222, American Philosophy; 246, Philosophy of Language. Political Science: 245, The American Presidency. Sociology: 248, Popular Culture Dynamics; 249, American Social Movements. Women's and Gender Studies: 249, Women and Humor in the Age of Television; 250, Contemporary Women's Movements; 250W, Contemporary Women's Movements.

Minor in Communication Studies

A minor in communication studies requires completion of 18 hours from the following requirements and options in communication studies courses:

Required: 100 and either 210 or 222.
One of the following: 200, 201, 204.
Any three of the following: 220, 221, 223, 224, 225, 226, 235, 241, 243, 244, 254, 254W, 294.

Course descriptions begin on page 177.

Earth and Environmental Sciences

CHAIR John C. Ayers
DIRECTOR OF UNDERGRADUATE STUDIES Daniel J. Morgan
DIRECTOR OF GRADUATE STUDIES Calvin F. Miller
PROFESSORS EMERITI Leonard P. Alberstadt, Arthur L. Reesman, William G. Siesser, Richard G. Stearns
PROFESSORS John C. Ayers, Ralf Bennartz, James H. Clarke, David J. Furbish, George M. Hornberger, David S. Kosson, Calvin F. Miller, Molly Fritz Miller
ASSOCIATE PROFESSORS Jonathan M. Gilligan, Steven L. Goodbred, Guilherme Gualda
ASSISTANT PROFESSORS Larisa R. G. DeSantis, Maria Luisa Jorge, Jessica L. Oster
SENIOR LECTURERS Lily L. Claiborne, Daniel J. Morgan

THE earth and environmental sciences are aimed at interpreting Earth's dynamic history—its age and origin as recorded in rocks and the landscape—and at understanding how geological processes affect modern environmental and ecological systems. 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 undergraduate major leading to the B.A. degree. Students majoring in EES participate in field and laboratory work. 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 studies and resource exploration (petroleum, minerals), or for related careers in such fields as land use planning, teaching, 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 Earth's crust, to the evolution of rivers and landscapes, to the evolution of sedimentary and biological environments, to geological processes in the human environment. Study areas, in addition to Middle Tennessee, include the southwestern United States, Antarctica, the Pacific northwest, and the southern Appalachians.

For students with primary interests in environmental issues, there are three degree options. A student may major in EES or may construct an individualized interdisciplinary major. Alternatively, a student may major in another conventional discipline and augment that with an environmental science minor.

Program of Concentration in Earth and Environmental Sciences

Three options are available within the EES major. All provide a solid grounding in the earth and environmental sciences. The differences are in requirements for supporting sciences and mathematics and for research. Option I provides a background for careers or post-graduate work in related fields such as teaching, law, or business and for some graduate programs and employment opportunities in earth and environmental sciences. Option II prepares students well for graduate work and careers in the earth and environmental sciences. Option III (Honors) is designed for excellent, highly motivated students who want to pursue research as undergraduates.

Required EES courses for all options	32 hours toward major
EES 101/111	4
EES 202 (or 102 prior to fall 2011)	4
EES 220 (or 220W prior to fall 2012)	4
EES 225	4
EES 226	4
EES 230	4
EES 240	4
EES 299	1
One additional course selected from the following: EES 201, 255, 260, 261, 282, 285, 320, 390	3

Option I. Provides students with a comprehensive background in geoscience. In addition to the courses listed above, students are required to take one course each from two of the following groups.

Group A: Physical World
Physics I (Physics 116a/118a 4 hr or Physics 121a 5 hr)
Chemistry I (Chemistry 102a/104a 4 hr)
Astronomy (201 3 hr)

Group B: Earth Life
Biological Sciences (100/101a 4hr or 110a/111a 4 hr or 118 4 hr or 218 4 hr or 219 4 hr or 238/237 4 hr)

Group C: Quantitative Skills
Calculus I (Math 140 4 hr or 150a 3 hr or 155a 4 hr)
Statistics (Math 127a 3 hr)

Total hours: 38–41

Option II. Provides students with most course work needed for a career or graduate studies in geoscience. Students take the required EES courses and complete the following:

Physics I (116a/118a 4 hr)
Chemistry I (102a/104a 4 hr)
Calculus I (Math 150a 3 hr or 155a 4 hr)

Total hours: 43–44

In addition, the second semesters of Chemistry, Physics, and Calculus as well as one or more courses in Biological Sciences are highly recommended to complete courses commonly required for graduate school or employment. Recommended selections include:

Physics II (116b/118b 4 hr) or Chemistry II (102b/104b 4 hr) or Calculus II (Math 150b 3 hr or 155b 4 hr)
Biological Sciences (100/101a 4hr or 110a/111a 4 hr or 118 or 218 4 hr or 219 4 hr or 238/237 4 hr) or Astronomy (201 3 hr)

Option III. Honors. Provides research experience as well as course work preparation for a career or graduate studies in earth or environmental sciences. Course work is the same as for Option II with the addition of EES 292a and 292b (4 hours).

Total hours: 47–48

Interested students should apply to the undergraduate adviser for entry into the Honors program before the end of fall semester, junior year. A minimum of a 3.3 grade point average both overall and in the major is required for entry into 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 senior year. In order to graduate with honors in EES, a student must: (1) maintain a 3.3 average; (2) complete the required courses for Option II plus EES 292a and 292b; (3) 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, however, prepare students for graduate studies or employment as earth scientists.

The minor consists of at least five courses (at least 17 hours; EES 101/111 and 103/113 each count as one course; EES 205 does not count toward the minor). Although EES 101 (with 111) and 103 (with 113) are highly recommended, 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 100-level courses count toward the minor. Two courses with labs are required; one must be at the 200 level. No credit toward the minor is given for EES 289a–289b or 291a–291b.

Minor in Environmental Science

The interdisciplinary minor in environmental science requires a minimum of 15 hours. Environmental science is the study of how the earth's natural environmental processes work, how they have been or can be modified by humans and society, and how such modifications impact on the biosphere, at the levels of individuals through ecosystems. An environmental science minor provides students the opportunity to expand their education to include a coherent program in the scientific aspects of how we interact with and modify the earth's environment.

Students who want to minor in environmental science must take a minimum of five courses chosen from the courses listed below and approved by an adviser. Two must be from the core environmental science list (A), and at least two others must be from either the environmental science list (C) or the core environmental science list (A). No more than one 100-level course may be counted toward the minor. Not more than two courses can come from the student's major department, recognizing that such courses cannot be counted simultaneously for both a major and a minor.

A) CORE ENVIRONMENTAL SCIENCE: Anthropology: 207, Environmental Anthropology. Biological Sciences: 218, Introduction to Plant Biology; 219, Introduction to Zoology; 238, Ecology. Environmental Engineering: 271, Environmental Chemistry. Earth and Environmental Sciences: 260, Geochemistry.

B) CORE ENVIRONMENTAL STUDIES: Anthropology: 207, Environmental Anthropology. Engineering Science: 157, Technology and the Environment. Sociology: 270, Human Ecology and Society.

C) ENVIRONMENTAL SCIENCE: Biological Sciences: 205, Evolution; 210, Principles of Genetics; 211, Genetics Laboratory; 220, Biochemistry; 265, Nucleic Acid Transactions; 270, Statistical Methods in Biology. Chemistry: 210, Introduction to Analytical Chemistry; 211, Instrumental Analytical Chemistry; 220a–220b, Organic Chemistry. Civil Engineering: 203, Fluid Mechanics; 212, Hydrology; Environmental Engineering: 260, Solid and Hazardous Waste Management; 272, Biological Unit Processes; 275, Environmental Risk Management; 280, Atmospheric Pollution. Earth and Environmental Sciences: 101, The Dynamic Earth: Introduction to Geological Sciences; 103, Oceanography; 220, Life through Time. Mathematics: 219, Introduction to Applied Statistics.

D) ENVIRONMENTAL STUDIES: Philosophy: 244, Philosophy and the Natural Sciences; 273, Environmental Philosophy.

Licensure for Teaching

Candidates for teacher licensure in earth and space science at the secondary level should refer to the chapter on Licensure for Teaching in the Peabody College section of this catalog.

Course descriptions begin on page 178.

Economics

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 Managerial Studies.

Economics 100 and 101 are prerequisites to all courses numbered above 200, except Economics 222 which only requires Economics 100.

Program of Concentration in Economics

The requirements for the major include completion of at least 33 hours in economics courses, including 100, 101, 150 or 155 (or both Math 218 and Math 219), 231, 232. Students who complete Economics 253 with Math 218 and 218L as a prerequisite need not take Economics 150 or 155. At least 9 hours must be in courses numbered 250 or above. Courses in Financial Economics do not carry credit in the economics major. Economics 115F may be counted as an elective. No more than 3 hours of independent study may be included in the minimum 33 hours required for the major.

Mathematics Prerequisite

Two semesters of calculus are strongly recommended for majors and minors in the department. Calculus is a prerequisite for Economics 150, 155, 231, and 232, courses that are required in the economics major and minor. At least one semester of calculus is required for all our programs.

Minor in Economics

The minor in economics requires 21 credit hours, including 100, 101, 150 or 155 (or Math 218 and Math 218L), 231, and 9 credit hours of electives. At least one elective must be numbered 250 or above. One semester of calculus is prerequisite to 150, 155, and 231. Financial Economics courses may not be taken for credit in the minor in economics.

Honors Program

An honors program is available in economics. This program is designed for highly motivated students interested in doing independent research. Honors candidates must take two semesters of calculus and 36 hours of work in economics, including all 15 hours of courses required for the Economics major. The following Honors Core requirements must be met in order for Honors in Economics to be awarded: (1) Economics 253, Introduction to Econometrics (3 credit hours); (2) Economics 291a–291b, thesis proposal development as Independent Study (1 credit hour minimum); (3) Economics 292a–292b, Senior Thesis (6 credit hours); (4) Economics 295a–295b, Honors Seminar (2 credit hours); (5) 9 hours of electives including 3 hours in an Economics course above 250. Students who are not sure whether they want to complete the Honors Program are urged to take an additional 3-hour elective. Honors candidates are also 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. Interested 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.

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 hours of course work of which 9 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.

Course descriptions begin on page 179.

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: All students must have at least one semester of calculus; two are strongly recommended for the economics component. Calculus is a prerequisite for ECON 150, 155, 231, and 232, which are required for the major. It is also a prerequisite for all economics courses numbered above 250.

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 numbered above 250:
HIST 160, 165, 166, 288a, 288b, 288W, ECON 226, 262, 266, 271. *Note:* ECON 231 is a prerequisite for ECON 262, 266, and 271.

Economics (18 credit hours)

ECON 100, 101, 150 or 155, 231, 232; one ECON course numbered above 250 not included in the economic history core.

Note: The following course sequences may be substituted for ECON 150 or 155:

(1) MATH 218, 218L, and 219 or

(2) MATH 218, 218L, and ECON 253. ECON 253 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 200W; must be taken by the end of the junior year.

(2) History 295, a course from Option 3 as listed in the history major description for a capstone option (prerequisite: History 200W), or History 298a–298b (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 taken 298a but does not take 298b may be considered to have fulfilled the capstone requirement for the major.

(3) Four other history courses not included in the economic history core (note that 169 is NOT accepted as an elective for the major). These electives may also include any of the following: AADS 102, 201, 205, 221, 265; ASIA 230; CLAS 207, 208, 209, 212, 213, 223, 224; EUS 201, 220, DIV 2750, 3217; GER 182; HOD 1150; JS 115F.09, 120, 122, 123, 124, 156, 158, 222, 234, 245, 252, 256, 257; MHS 208; PHIL 210; RLST 206, 216.

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 297, 298a–298b, 299. Because HIST 298a–298b satisfies the capstone requirement, honors students will not be required to take HIST 295, though they may enroll for 295 as an elective. Students will write an interdisciplinary thesis under the direction of an adviser from each department.

English

CHAIR Mark Schoenfield
ASSOCIATE CHAIR Kathryn Schwarz
DIRECTOR OF UNDERGRADUATE STUDIES Roy K. Gottfried
DIRECTOR OF GRADUATE STUDIES Mark A. Wollaeger
DIRECTOR OF CREATIVE WRITING PROGRAM Lorraine Lopez
PROFESSORS EMERITI Vereen M. Bell, Paul Elledge, John Halperin, R. Chris Hassel Jr., Harold Lerow Weatherby Jr.
PROFESSORS Houston Baker, Jay Clayton, Kate Daniels, Colin (Joan) Dayan, Carolyn Dever, Tony Earley, Lynn E. Enterline, Sam B. Girgus, Roy K. Gottfried, Mark Jarman, Michael Kreyling, Vera Kutzinski, Jonathan Lamb, Leah S. Marcus, Lorrie Moore, Dana Nelson, Charlotte Pierce-Baker, John F. Plummer III, Mark Schoenfield, Kathryn Schwarz, Hortense Spillers, Cecelia Tichi, Mark A. Wollaeger
ASSOCIATE PROFESSORS Jennifer Fay, Teresa A. Goddu, Lorraine Lopez, Ifeoma Nwankwo, Bridget Orr, Nancy Reisman, Allison Schachter, Rachel Teukolsky, Paul Young
ASSISTANT PROFESSORS Elizabeth Essin, Humberto Garcia, Rick Hilles, Emily King, Marzia Milazzo, Haerin Shin, Ben Tran
SENIOR LECTURERS John Bradley, Gabriel Briggs, Nancy Chick, Elizabeth Covington, Rory Dicker, Julia Fesmire, Andrea Hearn, Scott Juengel, Roger Moore
WRITERS IN RESIDENCE Beth Bachmann, Peter Guralnick, Amanda Little, Sandy Solomon

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, in Anglophone literatures of other countries, in literary theory, and in 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 a variety of careers where the analytic, reading, and writing skills gained are especially valued, and as preparation for postgraduate work in literature. The department also regards its goals as helping students become readers of literature and culture throughout their lives.

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 various campus publications including the *Hustler* paper and the *Vanderbilt Review,* a distinguished collection of creative writing. An English majors 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 hours)

Students pursue a broad range of interests through a flexible approach to the study of literature. 30 total hours including:

1. 116W, 117W, or 118W is required and should be taken in the freshman or sophomore year.
2. 9 hours in literature before 1800 and 3 hours in ethnic or non-Western literature.
3. 15 additional hours of electives in English, chosen from the courses that count toward the major, as described under General Requirements and Advice.

Program II: Creative Writing (30 hours)

Students develop their creative writing while acquiring an overview of English literature. 30 total hours including:

1. 116W, 117W, or 118W is required and should be taken in the freshman or sophomore year.
2. 12 hours of creative writing courses from at least two different genres: 200, 201, 202, 204, 205, 206, 207. Admission to

these courses is by the consent of the instructor.

3. 9 hours in literature before 1800 and 3 hours in ethnic or non-Western literature.
4. 3 additional hours of electives in English, chosen from the courses that count toward the major, as described under General Requirements and Advice.

Program III: Specialized Critical Studies (36 hours)

Students design their own specialized course of study with a descriptive name and develop a contract of courses for it. 36 total hours including:

1. 116W, 117W, or 118W is required and should be taken in the freshman or sophomore year.
2. 18 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 hours may be taken in courses from other departments relevant to the concentration. In consultation with their advisers, students select specific courses, which they list in a contract when they declare their majors.
3. 9 hours in literature before 1800 and 3 hours in ethnic or non-Western literature. All of these courses may count toward the requirement of #2, above.
4. 3 additional hours of electives in English, chosen from the courses that count toward the major, as described under General Requirements and Advice.

General Requirements and Advice for Majors in All Programs:

Prospective majors should take English 116W, Introduction to Poetry; 117W, Introduction to Literary Criticism; or 118W, Introduction to Literary and Cultural Analysis during the freshman or sophomore year.

With the exception of 116W, 117W, and 118W, 100-level courses do not count toward the major. Only one of these three courses can be counted toward the major. All 200-level courses (except 290b) count toward the major. English 272, 272W, 273, 273W, 274, 274W, and 288 may be repeated for credit when the topics are different.

The survey courses, 208a–208b, 211, and 211W are recommended for sophomores to provide a background for advanced courses. Students considering Program II (Creative Writing) may wish to take 122 or 123 as preparation during their freshman or sophomore year.

Courses that fulfill the early period requirement (literature before 1800) include 208a, 209a, 209b, 210, 210W, 219, 220, 221, 230, 236, 236W, 240, 248, 249, 250, 251, 252a, 252b, 289a–289b (as appropriate).

Courses that meet the ethnic or non-Western requirement include 263, 263W, 271, 275, 276, 277, 277W, 278, 278W, 279, 279W, 283, 289a–289b (as appropriate), and appropriate dual-listed courses as approved by the director of undergraduate studies.

In addition, suitable sections of 272, 272W, 273, 273W, 274, 274W, 280, 288, 288W, and occasionally other courses will fulfill the pre-1800 or the ethnic or non-Western requirement; these classes will be announced on the Department of English website.

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 hours already allowed from other departments.

Detailed course descriptions appear on the Department of English website and are available in the department.

Majors are required to consult with their advisers during registration.

Honors Program

To graduate with honors in English, students must (a) complete all the requirements of the English major, with at least 6 hours in honors sections (an appropriate graduate seminar or seminar in a study abroad program may be substituted for one honors seminar); (b) 3 hours of 290a; (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 (290b) and pass an oral examination about its subject in the spring of the senior year.

For secondary education double-majors, EDUC 3007 can be substituted for 290b with the consent of the director of undergraduate studies.

To comply with all requirements, every honors student will complete 33 hours. Exceptional achievement on the thesis will earn highest honors. Majors who wish to apply to the Honors Program must be within 6 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.

Minor in English

At least 18 hours of courses in English are required. These courses must include 3 hours from literature before 1800 and 3 hours of ethnic or non-Western literature. Students may count one of 116W, 117W, or 118W, and all 200-level courses toward the minor.

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.

Course descriptions begin on page 181.

Environmental and Sustainability Studies

DIRECTOR David Hess

HUMAN beings and their societies necessarily interact with and alter Earth's natural environment. The environmental and sustainability studies minor allows the student to examine

human interaction with the environment from the perspectives of the humanities and social sciences with some exposure to the environmental sciences and/or environmental engineering.

Minor in Environmental and Sustainability Studies

Students who want to minor in environmental and sustainability studies must take a minimum of six courses (18 credits 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: one science- and technology-intensive course (A); two humanities courses (B); two social-behavioral and policy-intensive courses (C); and a capstone course. No more than two courses may be at the 100 level. In addition, no more than three 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 233, BSCI 238, CE 200B*, CE 200*, EES 101, EES 103, EES 107, EES 108, EES 115F*, EES 201, EES 205, EES268, EES 275, EES 282, ENVE 254, ENVE 264, ES 101.01

B) *Humanities Courses:* AMER 115F*, AMER 294,* AMER 295.01, AMER 300, ENGL 211/211W*, ENGL 243/243W*, ENGL 288/288W*, HART 260W, HIST 148, PHIL 115F*, PHIL 273, PHIL 274, RLST 221, WGS 268

C) *Social-Behavioral Sciences and Policy Intensive Courses:* ANTH 208, ANTH 280, ECON 228, HOD 2960*, HOD 2610, PSCI 253, PSY 115F*, SOC 102/102W*, SOC 115F*, SOC 206, SOC 221, WGS 115F*

D) *Capstone:* ENVS 278 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.

Course descriptions begin on page 184.

European Studies

DIRECTOR Joy Calico
ASSISTANT PROFESSORS Alexander Joskowicz, Zeynep Somer-Topcu

Affiliated Faculty
PROFESSOR EMERITUS M. Donald Hancock (Political Science and European Studies), John A. McCarthy (German and Comparative Literature and European Studies)
PROFESSORS Celia Applegate (History), Michael D. Bess (History and European Studies), David Blackbourn (History), James Booth (Political Science), William Caferro (History), Katherine B. Crawford (History), Carolyn Dever (English and Women's and Gender Studies), Robert Driskill (Economics), Lynn E. Enterline (English), James A. Epstein (History), Edward F. Fischer (Anthropology), Leonard Folgarait (History of Art), William P. Franke (Comparative Literature and Italian), Edward H. Friedman (Spanish and Comparative Literature and European Studies), Marc Froment-Meurice (French), Lenn E. Goodman (Philosophy), Roy K. Gottfried (English), Barbara Hahn (German), Joel F. Harrington (History), Mark Jarman (English), Christopher M.S. Johns (History of Art), Lutz Koepnick (German), John Lachs (Philosophy), Leah S. Marcus (English), Thomas A. J. McGinn (Classical Studies), Kelly Oliver (Philosophy and Women's Studies), John F. Plummer III (English), Philip D. Rasico (Spanish and Catalan), Mark Schoenfield (English), Thomas A. Schwartz (History and European Studies), Kathryn Schwarz (English), Virginia M. Scott (French), Helmut W. Smith (History and European Studies), Holly A. Tucker (French and Medicine, Health, and Society), Mark A. Wollaeger (English), David C. Wood (Philosophy and European Studies)
VISITING MAX KADE PROFESSOR Jan Buerger (German)
ASSOCIATE PROFESSORS George Becker (Sociology), Victoria Burrus (Spanish), Joy Calico (Musicology and European Studies), Cynthia Cyrus (Musicology and European Studies), Nathalie Debrauwere-Miller (French), Idit Dobbs-Weinstein (Philosophy), Jay Geller (Divinity School), Lisa Guenther (Philosophy), Shaul Kelner (Sociology and Jewish Studies), Richard Lloyd (Sociology), Anthère Nzabatsinda (French), Lynn Ramey (French), Matthew Ramsey (History), Michael A. Rose (Composition), Allison Schachter (Jewish Studies and English), Jeffrey S. Tlumak (Philosophy), Barbara Tsakirgis (Classical Studies and History of Art), Martina Urban (Religious Studies and Jewish Studies), Francis W. Wcislo (History), Meike G. J. Werner (German and European Studies), Julian Wuerth (Philosophy), Andrés Zamora (Spanish and European Studies), Christoph Zeller (German)
VISITING ASSOCIATE PROFESSOR Johannes Endres (German)
MELLON ASSISTANT PROFESSOR Tatiana Filimonova (Russian)
ASSISTANT PROFESSORS Lauren Clay (History), Julia Cohen (Jewish Studies and History), James McFarland (German), Andrea Mirabile (Italian), Elizabeth J. Moodey (History of Art), Claudia Rei (Economics), William F. Robinson (History), Margaret Setje-Eilers (German)
SENIOR LECTURERS Elena Olazagasti-Segovia (Spanish), Sheri F. Shaneyfelt (History of Art)
LECTURERS David Johnson (Russian), Jason Strudler (Russian)

Program of Concentration in European Studies

Designed for students who seek to broaden their awareness of the European experience and to prepare for international careers or advanced study, the program in European studies (EUS) offers majors disciplinary breadth as well as expertise in a specialty of their choosing. Most EUS majors also participate in one of the Vanderbilt study abroad programs in Europe and/or reside in the International House on campus.

The interdisciplinary major consists of 42 hours of course work, to be distributed among various disciplines as indicated in the following. Emphasis is on political, cultural, economic, and related trends or events especially since the early modern period.

Advising is crucial to the successful completion of the major in EUS. In consultation with an adviser in European Studies, students choose a thematic focus and specific courses that will fulfill the requirements for the major. This focus can consist of a thematic or comparative topic (such as culture and society during a particular epoch), a regional or subregional topic (such as European integration, the Iberian Peninsula, the Baltic region), 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 European Studies program, located in the Max Kade Center for European and German Studies, sponsors special activities including a visiting lecture series, international symposia, and informal faculty-student luncheon seminars. Both academic scholars and public figures are invited to campus to address European and transatlantic affairs.

Required Core Courses (21 hours)

- EUS 201, European Society and Culture (3 hours).
- EUS 203, The Idea of Europe (3 hours).
- EUS 250, Senior Tutorial (3 hours).

- 6 hours in Political Science, PSCI 210, West European Politics, and PSCI 211, The European Union, or appropriate substitute(s) with the approval of the EUS adviser.
- 6 hours in European history in the student's special interest area, to be selected from the list below and in consultation with the major adviser.

Foreign Language Requirement (6 hours)

The foreign language requirement is to be satisfied in one of the following ways:

- 6 hours of course work beyond the intermediate level in one European language;
- course work through the intermediate level in two European languages;
- demonstration of proficiency equivalent to either of the preceding options; or
- participation in one of the Vanderbilt study programs in Europe (students participating in the Vanderbilt in England program must complete course work through the intermediate level in one European language, or demonstrate equivalent proficiency).

Electives (15 hours)

The remainder of the 42 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. They should be distributed as follows:

- 3 additional hours in history
- 3 additional hours from other social science fields
- 9 hours from the humanities

Other Issues Relating to the Major

Normally, no more than 6 hours of work in 100-level courses may be counted toward the major; however, students offering two languages through the intermediate level may also count toward the major the intermediate-level courses in one of those languages.

Independent study and research courses and selected topics courses should have topics appropriate to the student's course of study.

Students seeking a second major may count a maximum of 6 hours of course work to meet requirements in both majors.

Joint Major Option

The Max Kade Center houses the program in European studies which collaborates with several departments to create joint majors in French and European studies, German and European studies, Italian and European studies, Russian and European studies, Spanish and European studies, and Spanish, Portuguese, and European studies. These options are offered as collaborations between the European studies program and the Departments of French and Italian, Germanic and Slavic Languages, and Spanish and Portuguese. 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 department as well as their adviser in the European studies program.

Honors Program

The European Studies program 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 obtained a minimum grade point average of 3.000; identify an adviser for the thesis; submit a detailed description of their proposed program of study for approval of the director or associate director of EUS; complete 3 hours of independent research (normally EUS 289a or 289b); complete 3 hours of credit in EUS 250, Senior Tutorial, that involves researching and writing a senior honors thesis of approximately fifty pages and that reveals an interdisciplinary perspective; successfully defend the honors thesis before a committee normally consisting of the adviser, the director of EUS, and another EUS 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 Max Kade Center for European and German Studies also houses a minor in European studies. The EUS minor is a logical complement to a major in anthropology, history, economics, literary studies, philosophy, and political science. It involves 18 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 201, European Society and Culture
- EUS 203, The Idea of Europe
- 3 additional hours selected from EUS-labeled courses (or approved substitute)
- a minimum of 3 hours of modern European history
- a minimum of 3 hours of relevant work in social science
- a minimum of 3 hours of relevant work in humanities

The minimum number of hours required for the minor is 18.

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.

European History

EUROPEAN STUDIES: 208, Conspiracy Theories and Rumors in European and U.S. History; 240, Topics in European Studies; 260, European Cities.

HISTORY: 115F-08, European Imperialism: Colonizer and Colonized in the Modern World; 135, Western Civilization to 1700; 136, Western Civilization since 1700; 139, America to 1776: Discovery to Revolution; 148, The Darwinian Revolution; 151, The Scientific Revolution; 158, Crime and Punishment in Early Modern Europe 1400–1800 C.E.; 160, European Economic History, 1000–1700; 170, Western Military History to 1815; 172, World War II; 173, The U.S. and the Cold War; 176, History of Christian Traditions; 183, Sexuality and Gender in the Western Tradition to 1700; 184, Sexuality and Gender in the Western Tradition since 1700; 187, Pornography and Prostitution in History; 209, Russia: Old Regime to Revolution; 210, Russia: The U.S.S.R. and Afterward; 222, Medieval and Renaissance Italy, 1000–1700; 223, Medieval Europe, 1000–1350; 225, Reformation Europe; 226, Revolutionary Europe, 1789–1815; 227, Nineteenth-Century Europe; 228, Europe, 1900–1945; 229, Europe since 1945; 230, Twentieth-Century Germany; 231, France: Renaissance to Revolution; 234, Modern France; 238, Shakespeare's Histories and History; 239a, The Real Tudors; 241, Victorian England; 243W, The English Atlantic World, 1500–1688; 244,

Rise of the Iberian Atlantic Empires, 1492–1700; 245, Reform, Crisis, and Independence in Latin America, 1700–1820; 280, Modern Medicine; 286g, Weimar Germany: Modernism and Modernity, 1918–1933; 287c, Cities of Europe and the Middle East; 287g, Making of Modern Paris; 288e, The Art of Empire; 289a, Revolutionary England, 1603–1710; 289d, Religion and the Occult in Early Modern Europe.

JEWISH STUDIES: 122, Classical Judaism: Jews in Antiquity; 123, Jews in the Medieval World; 124, Perspectives in Modern Jewish History; 156, The Holocaust; 180, Introduction to Jewish Studies.

Social Sciences

ANTHROPOLOGY: 244, Social and Health Consequences of Pandemics.

ECONOMICS: 224, Russia in the World Economy; 262, History of Economic Thought; 263, International Trade; 264, International Finance; 271, Economic History of Europe.

EUROPEAN STUDIES: 240, Topics in European Studies.

POLITICAL SCIENCE: 101, Introduction to Comparative Politics; 102, Introduction to International Politics; 103, Justice; 202, Ancient Political Thought; 203, History of Modern Political Philosophy; 210, West European Politics; 211, The European Union; 221, Causes of War; 223, European Political Economy and Economic Institutions; 225, International Political Economy; 226, International Law and Organization; 238, Comparative Political Parties.

SOCIOLOGY: 294, Seminars in Selected Topics (with appropriate topic); 299, Independent Research and Writing (with appropriate topic).

Humanities

CLASSICS: 225, Humor, Ancient to Modern; 240, The Trojan War in History, Art, and Literature.

COMMUNICATION STUDIES: 222, The Rhetorical Tradition.

ENGLISH: 115F, First-Year Writing Seminar (with appropriate topic); 208a–208b, Representative British Writers; 209a–209b, Shakespeare; 210, 210W, Shakespeare: Representative Selections; 220, Chaucer; 221, Medieval Literature; 230, The Eighteenth-Century English Novel; 231, The Nineteenth-Century English Novel; 233, The Modern British Novel; 235, Contemporary British Literature; 244, Critical Theory; 248, Sixteenth Century; 249, Seventeenth-Century Literature; 250, English Renaissance: The Drama; 251, Milton; 252a–252b, Restoration and the Eighteenth Century; 254a–254b, The Romantic Period; 255, The Victorian Period; 256, Modern British and American Poetry: Yeats to Auden; 264, Modern Irish Literature; 272, 272W, Movements in Literature (with appropriate topic); 273, 273W, Problems in Literature (with appropriate topic); 274, 274W, Major Figures in Literature (with appropriate topic); 282, The Bible in Literature; 286a–286b, Twentieth-Century Drama (with appropriate topic); 288, 288W, Special Topics in English and American Literature (with appropriate topic).

EUROPEAN STUDIES: 240, Topics in European Studies; 260, European Cities.

FRENCH: 201W, French Composition and Grammar; 204, French for Business; 209, Contemporary France; 210, French and Francophone Cinema; 211, Text and Contexts: Middle Ages to the Enlightenment; 212, Texts and Contexts: Revolution to the Present; 214, Advanced Conversational French; 215, La Provence; 216, Cultural Study Tour; 218, The Contemporary Press and Media; 224, Art and Literature of the Nineteenth Century; 225, Art and Literature of the Twentieth Century; 226, Advanced French Grammar; 232, The *Querelles des femmes;* 234, Medieval French Literature; 237, The Early Modern Novel; 238, The Twentieth-Century Novel; 240, From Carnival to the "Carnivalesque"; 241, Emile Zola: From Naturalist Novels to Social Activism; 251, Provence and the French Novel; 252, Literature and Law; 253, Literature of the Fantastic; 255, French Feminist Thought: Literary and Critical; 256, French Intellectual History; 260, Enlightenment and Revolution; 261, Age of Louis XIV; 265, From Romanticism to Symbolism; 267, Twentieth-Century French Literature; 271, French and Italian Avant-garde; 272, Adultery and Transgressions in Literature.

GERMAN: 115F, First-Year Writing Seminar; 172, Borders and Crossings: German Literature and Culture from Romanticism to the Present; 182, War on Screen; 201W, Introduction to German Studies; 213, Conversation and Composition: Current Events; 214, Conversation and Composition: Contemporary Culture; 216, Business German; 221, German Culture and Literature; 222, German Culture and Literature; 223, From Language to Literature; 235, German Romanticism; 237, Women and Modernity; 238, Interconnections of Arts and Science: Goethe and the Natural World; 241, The Racial Imagination; 242, German Mystery Novels: From Romanticism to Kafka; 243, The Aesthetics of Violence: Terror, Crime, and Dread in German Literature; 244, German Fairy Tales from Brothers Grimm to Walt Disney; 245, Love and Friendship; 246, German Masterpieces in English Translation; 248, German Lyric Poetry–Form and Function; 262, German Literature of the Middle Ages; 263, The Age of Goethe–Weimar 1775 to 1805; 264, Pleasures and Perils in Nineteenth-Century Theatre; 265, Revolutionizing Twentieth-Century Theatre; 266, Nineteenth-Century Prose; 267, The German Novel from Kafka to Grass; 269, Writing under Censorship; 270, German Cinema: Vampires, Victims, and Vamps; 271, Women at the Margins: German-Jewish Women Writers; 273, Nazi Cinema: The Manipulation of Mass Culture; 274, Who Am I? German Autobiographies; 275, Art and Rebellion: Literary Experiment in the 1960s and 1970s; 276, Tales of Travel in Modern German Culture; 278, Dreams in Literature; 280, Murder and Mayhem: The *Sturm und Drang*.

HISTORY OF ART: 110, History of Western Art I; 111, History of Western Art II; 115F, First-Year Writing Seminar (with appropriate topic); 210, Early Christian and Byzantine Art; 211, Medieval Art; 213W, The Court of Burgundy; 214, Fifteenth-Century Northern European Art; 216, Raphael and the Renaissance; 217, Early Renaissance Florence; 217W, Early Renaissance Florence; 218, Italian Art to 1500; 219, Italian Renaissance Art after 1500; 220, Michelangelo's Life and Works; 220W, Michelangelo's Life and Works; 221, Seventeenth-Century Art; 222, British Art: Tudor to Victorian; 223, Twentieth-Century British Art; 224, Eighteenth-Century Art; 226, Neoclassicism and Romanticism; 229, Nineteenth Century Architecture: Theory and Practice; 230, Nineteenth-Century European Art; 231, Twentieth-Century European Art; 232, Modern Architecture; 235, Modern Art and Architecture in Paris; 237, History of Spanish Art up to the Seventeenth Century; 238, History of Spanish Art from the Seventeenth Century to the Present; 255, Greek Art and Architecture.

ITALIAN: 200, Italian Journeys; 201W, Grammar and Composition; 214, Conversation; 220, Introduction to Italian Literature; 230, Italian Civilization; 231, Dante's *Divine Comedy;* 232, Literature from the Middle Ages to the Renaissance; 233, Baroque, Illuminismo, and Romanticism in Italy; 235, Twentieth-Century Literature: Beauty and Chaos; 238, City Fictions; 239, Topics in Contemporary Italian Civilization; 240, Classic Italian Cinema; 241, Contemporary Italian Cinema; 242, Contemporary Italian Society and Culture; 250, *Famous Women* by Boccaccio.

JEWISH STUDIES: 158, The Jewish Diaspora; 235W, Hebrew Literature in Translation; 244, Freud and Jewish Identity; 248, Jewish Storytelling; 248W, Jewish Storytelling; 253W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors.

MUSIC LITERATURE: 121W, Music in Western Culture; 144, The Symphony; 145, Survey of Choral Music; 221a, Opera in the 17th and 18th Centuries; 221b, Opera in the 19th Century; 222, Mahler Symphonies: Songs of Irony; 223, Music in the Age of Beethoven and Schubert; 224, Haydn and Mozart; 225, Brahms and the Anxiety of Influence; 227, Music in the Age of Revolution, 1789–1848; 228, J. S. Bach: Learned Musician and Virtual Traveler; 229, Robert Schumann and the Romantic Sensibility; 294, Selected Topics in Music History (with appropriate topic).

PHILOSOPHY: 115F, First-Year Writing Seminar (with appropriate topic); 120, The Meaning of Life; 120W, The Meaning of Life; 211, Medieval Philosophy; 212, Modern Philosophy; 213, Contemporary Philosophy; 220, Immanuel Kant; 224, Existential Philosophy; 226, Phenomenology; 228, Nineteenth-Century Philosophy; 231, Philosophy of History; 232, Critical Theory; 240, History of Aesthetics; 241, Modernistic Aesthetics; 247, Kierkegaard and Nietzsche; 249, Philosophy of Music; 252, Political and Social Philosophy; 254, Modern Philosophies of Law; 258, Contemporary Political Philosophy; 260, Twentieth-Century Continental Philosophy; 261, Jewish Philosophy; 263, French Feminism.

PORTUGUESE: 200, Intermediate Portuguese; 201, Portuguese Composition and Conversation; 294, Special Topics in Portuguese Language, Literature, or Civilization (with appropriate topic).

RELIGIOUS STUDIES: 115F, First-Year Writing Seminar (with appropriate topic); 140, Great Books of Literature and Religion; 202, Natural Science and the Religious Life; 220W, Constructions of Jewish Identity in the Modern World; 229, The Holocaust: Its Meaning and Implications; 240, The Nature of Evil.

RUSSIAN: 171, A Tale of Three Cities; 172, Russian Culture in the Twentieth Century; 183, Russian Fairy Tales; 190, Russian and Soviet Short Story; 221, Survey of Russian Literature in English Translation; 222, Survey of Russian Literature in English Translation; 223, Composition and Conversation; 224, Composition and Conversation; 231, Jews in Russian Culture: Survival and Identity; 232, The Evil Empire: Stalin's Russia; 233, *Crime and Punishment;* 238, Dostoevsky's Major Novels: Philosophy and Aesthetics; 234, The Russian Cinema; 240, Terrors and Terrorists: Russian Literature of the Irrational and the Absurd; 250, Socio-Political and Cultural Developments in Post-Soviet Regions.

SPANISH: 201W, Intermediate Spanish Writing; 202, Spanish for Oral Communication through Cultural Topics; 205, The Way of Saint James; 206, Spanish for Business and Economics; 207, Advanced Conversation; 208, Advanced Conversation through Cultural Issues in Film; 220, The Languages of Spain; 221, Spanish Civilization; 226, Film and Recent Cultural Trends in Spain; 231, The Origins of Spanish Literature; 232, Literature of the Spanish Golden Age; 233, Spanish Literature from the Enlightenment to 1900; 234, Spanish Literature from 1900 to the Present; 239, Development of the Novel; 246, *Don Quixote;* 251, Development of Drama; 256, Love and Honor in Medieval and Golden Age Literature; 258, Spanish Realism; 260, Development of the Short Story; 281, Theory and Practice of Drama; 292, Images of the Feminine in Spanish Cinema.

WOMEN'S AND GENDER STUDIES: 272, Feminism and Film.

Course descriptions begin on page 184.

Film Studies

DIRECTOR Jennifer Fay
ASSISTANT DIRECTOR Jonathan Rattner
PROFESSOR Lutz Koepnick
ASSOCIATE PROFESSORS Jennifer Fay, Paul Young
ASSISTANT PROFESSORS Andrea Mirabile, Jonathan Rattner
SENIOR LECTURER Jonathan Waters

Affiliated Faculty
PROFESSORS Jay Clayton (English), Carolyn Dever (Women's and Gender Studies and English), Gerald Figal (History), Sam B. Girgus (English), Daniel Levin (Psychology, Peabody), Kelly Oliver (Philosophy), T. Sharpley-Whiting (African American and Diaspora Studies and French), Benigno Trigo (Spanish), Mark A. Wollaeger (English)
ASSOCIATE PROFESSORS Vanessa Beasley (Communication Studies), Joy Calico (Music), Phillip Franck (Theatre), Jay Geller (Divinity School), Jon Hallquist (Theatre), Terryl Hallquist (Theatre), Yoshikuni Igarashi (History), Trica Keaton (African American and Diaspora Sudies), Stanley Link (Music), Emanuelle Oliveira (Portuguese), Lynn T. Ramey (French)
ASSISTANT PROFESSORS Peter Lorge (History), James McFarland (Germanic and Slavic Languages), Vesna Pavlovic (Art), Margaret Setje-Eilers (Germanic and Slavic Languages), Claire Sisco King (Communication Studies)

FILM studies is an interdisciplinary major and minor that combines the practice of filmmaking with the study of film 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. While the program encourages new ways of thinking, looking, and making, it also develops the traditional learning skills of a liberal education. A core curriculum in film theory, history, and filmmaking is supplemented with classes in the related arts, disciplines, and minority and non-U.S. cinemas. The film studies major concludes with a senior seminar.

Major in Film Studies

The film major consists of 36 hours. The requirements are as follows:

CORE REQUIREMENTS

1. Film Studies 105 (Fundamentals of Film and Video Production).
2. Film Studies 125 (Introduction to the Study of Film)
3. Film Studies 175 (Intermediate Filmmaking: Alternate Forms)
4. Film Studies 176 (Intermediate Filmmaking: The Fiction Film)
5. Film Studies 201 (Film Theory)
6. Film Studies 211 (History of World Cinema)
7. Senior Seminar—Film Studies 290a or 290b
8. Two courses in Film Studies electives: Film Studies 115F (First-Year Writing Seminar), Film Studies 227W (Screenwriting), Film Studies 275W (Advanced Screenwriting), Film Studies 288a (Special Topics in Film and Video Production), Film Studies 288b (Special Topics in the Study of Film). Please note that 175 and 176 do not count for elective credit.
9. One course in cultural minority or non-U.S. national cinemas: African American and Diaspora Studies 150 (Reel to Real: Film Aesthetics and Representation), Asian Studies 212 (Explorations of Japanese Animation), French 210 (French and Francophone Cinema), German 244 (German Fairy Tales: From Brothers Grimm to Walt Disney), German 270 (German Cinema: Vampires, Victims, and Vamps), German 273 (Nazi Cinema: The Manipulation of Mass Culture), Italian 240 (Classic Italian Cinema), Jewish Studies 136W (Imagining the Alien: Jewish Science Fiction), Portuguese 203 (Brazilian Pop Culture), Spanish 208 (Advanced Conversation through Cultural Issues in Film), Spanish 226 (Film and Recent Cultural Trends in Spain), Spanish 292 (Images of the Feminine in Spanish Cinema).
10. One course in film and the other arts: Art Studio 120 (Photography I), Art Studio 122 (Digital Imaging I), Art Studio 171 (Video Art), Art Studio 173 (Interactive Portable Media and Cell Phone Art I), Art Studio 220 (Photography II), 222 (Digital Imaging II), 271 (Video Art II), 273 (Interactive Portable Media and Cellphone Art II), History of Art 222 (British Art: Tudor to Victorian), History of Art 231 (Twentieth-Century European Art), Music Literature 183 (Music, The Arts, and Ideas), Music Literature 264 (Exploring the Film Soundtrack), Theatre 110 (Introduction to Theatrical Production), Theatre 171 (Marshals, Mobsters, Monsters, Magnums, and Musicals: American Movie Genres), Theatre 212 (Scenery and Properties), Theatre 213 (Lighting and Sound), Theatre 214 (Costuming and Makeup), Theatre 219 (Acting I), Theatre 230 (Play Direction).

11. One course in film and other disciplines: Communication Studies 235 (Communicating Gender), Communication Studies 241 (Rhetoric of Mass Media), Communication Studies 243 (Cultural Rhetorics of Film), Communication Studies 294 (Selected Topics in Communication Studies, when a film topic is offered), English 265 (Film and Modernism), English 268a (America on Film: Art and Ideology), English 269 (Special Topics in Film), Philosophy 240 (History of Aesthetics), Philosophy 243 (Philosophy of Film), Psychology 2100 (Psychology and Film), Religious Studies 229 (The Holocaust: Its Meaning and Implications), Women's and Gender Studies 272 (Feminism and Film).

Other courses in film and media also may be counted toward the major, subject to the approval of the director of Film Studies.

Honors Program

The Honors Program in Film Studies offers excelling students the opportunity to pursue their interests at a higher level. For admission to the Honors Program, students must have an overall grade point average of 3.3 and an average of 3.5 in courses counting toward the major in film studies. The student must submit an application to the program director outlining the thesis topic. In addition to completing the major in film studies, students must take one graduate-level class related to film studies for at least 3 credit hours, to be approved by the program director. During the senior year the student is required to register for Film Studies 299a (3 credit hours) and 299b (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 Film Studies

The film minor consists of 18 hours. The requirements are as follows:

1. Film Studies 105 (Fundamentals of Film and Video Production).
2. Film Studies 125 (Introduction to the Study of Film).
3. One course in intermediate filmmaking: Film Studies 175 (Intermediate Filmmaking: Alternate Forms), Film Studies 176 (Intermediate Filmmaking: The Fiction Film).
4. One course in intermediate film studies: Film Studies 201 (Film Theory), Film Studies 211 (History of World Cinema).
5. Two courses in Film Studies electives: Film Studies 115F (First-Year Writing Seminar), Film Studies 227W (Screenwriting), Film Studies 275W (Advanced Screenwriting), Film Studies 288a (Special Topics in Film and Video Production), Film Studies 288b (Special Topics in the Study of Film).

Other courses related to film and media may also be counted as electives, subject to the approval of the director of Film Studies.

Course descriptions begin on page 184.

French and Italian

CHAIR Virginia M. Scott
DIRECTOR OF UNDERGRADUATE STUDIES IN FRENCH Lynn Ramey
DIRECTOR OF UNDERGRADUATE STUDIES IN ITALIAN Elsa Filosa
DIRECTOR OF GRADUATE STUDIES Nathalie Debrauwere-Miller
PROFESSORS EMERITI Barbara C. Bowen, Dan Church, Patricia A. Ward, Ruth G. Zibart
PROFESSORS Robert Barsky, William Franke, Marc Froment-Meurice, Virginia M. Scott, Tracy Sharpley-Whiting, Holly A. Tucker
ASSOCIATE PROFESSORS Nathalie Debrauwere-Miller, Letizia Modena, Anthère Nzabatsinda, Lynn Ramey
ASSISTANT PROFESSORS Elsa Filosa, Paul B. Miller, Andrea Mirabile
SENIOR LECTURERS Patricia Armstrong, Nathalie Dieu-Porter, Susan Kevra
LECTURERS Jessica Greenfield, Rebecca Peterson, Daniel Ridge

THE Department of French and Italian offers a program of concentration in French. Students use courses in both French and Italian to satisfy some requirements of AXLE. All literature and civilization courses and most language courses are taught in French or Italian.

Many students participate in the Vanderbilt in France or the Vanderbilt in Italy program. Activities organized by the department or by the French or Italian Clubs include lectures by visiting professors, films, and symposia. Students are urged to apply for living space in the French or Italian section of McTyeire International House; activities organized there are open to all interested parties.

Program of Concentration in French

Students who choose to major in French are expected to achieve advanced proficiency in oral and written French (Communications), to demonstrate a general understanding of the history of French and Francophone literatures and cultures (Traditions), and to develop an awareness of the ways French and Francophone studies intersect with other disciplines (Intersections). Of the 36 hours required for the major, 30 hours must be taken in French; 6 hours may be taken in a relevant area outside the department with adviser approval and may satisfy the requirement in Intersections. No more than 6 hours of AP or IB credit may count toward this total (3 hours for 201W and 3 hours no equivalent). All majors are strongly urged to spend a semester or a year studying at Vanderbilt in France or at one of our affiliated programs in Paris or in Senegal.

Course work for the major is distributed as follows:

Required courses (9 hours): 201W, 211, 212

Two courses from Communications (6 hours): 203, 204, 205, 214, 226

Three courses from Traditions (9 hours): 209, 215, 232, 234, 237, 238, 239, 240, 241, 251, 253, 255, 260, 261, 265, 267, 272, 294

Four courses from Intersections (12 hours): 210, 218, 219, 222, 224, 225, 252, 256, 258, 268, 269, 271, 287a, 295 (Two courses in related fields will count in this category.)

All majors are expected to consult their advisers about their choice of major courses each semester.

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 36-hour major in French.
2. One 300-level French course during the senior year for at least 4 credit hours; this course may substitute for one 200-level course required for the major.
3. A minimum of one semester of study (or the summer session) at Vanderbilt in France or at an approved substitute program in a French-speaking country.
4. 3.5 grade point average in French.
5. Completion of a senior honors thesis, under the direction of a faculty adviser.
6. 6 hours of thesis credit under French 299a and 299b (Senior Honors Thesis).
7. 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 45 hours of course work. A semester of study at Vanderbilt in France or at an affiliated program in Paris is required. Course work for the joint major is distributed as follows (all courses for the French side must be in French):

French (27 hours)

French Language, Literature, and Culture (9 hours): 201W, 211, 212
Communications (6 hours): 203, 204, 205, 214, or 226
Traditions (6 hours): 209, 215, 232, 234, 237, 238, 239, 240, 241, 251, 253, 255, 260, 261, 265, 267, 272, or 294
Intersections (6 hours): 210, 218, 219, 222, 224, 225, 252, 256, 258, 266, 268, 269, 271, 287a, or 295

European Studies (18 hours)

European Studies core courses (9 hours): EUS 201, 203, 250 (requires thesis)
Social Science (6 hours): PSCI 287 when offered in Aix, approved alternative course at IEP at Aix as approved by adviser (course must be in French), PSCI 210, PSCI 211, or appropriate substitute from any other social studies discipline with approval of the EUS adviser
European History (3 hours): HIST 223, 225, 226, 227, 228, 229, 231, 234, or approved course in consultation with the EUS adviser

Minor in French

The minor in French requires 18 hours of 200-level course work, including 201W, 211, and 212. 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 the Vanderbilt in France program.

Minor in Italian

The minor in Italian requires 18 hours of course work, including 201W, Grammar and Composition; 214, Conversation; 220, Introduction to Italian Literature; and three electives from the 200-level courses, except 289. Students are encouraged to participate in the Vanderbilt in Italy program.

Minor in Italian Studies

The minor in Italian studies requires 18 hours of course work, including Italian 201W, Grammar and Composition; 220, Introduction to Italian Literature; 230, Italian Civilization; European Studies 201 or 203; and two courses chosen from the following:

HISTORY: 222, Medieval and Renaissance Italy, 1000–1700

HISTORY OF ART: 218, Italian Art to 1500; 219, Italian Renaissance Art after 1500

ITALIAN: 231, Dante's *Divine Comedy;* 232, Literature from the Middle Ages to the Renaissance; 233, Baroque, Illuminismo, and Romanticism in Italy; 235, Twentieth-Century Literature: Beauty and Chaos; 239, Topics in Contemporary Italian Civilization; 240, Classic Italian Cinema

MUSIC LITERATURE: 221a, Opera in the 17th and 18th Centuries; 221b, Opera in the 19th Century; 243, Music of the Baroque and Classic Eras; 244, Music of the Romantic and Modern Eras

VANDERBILT IN ITALY: Any content course (i.e., not language) taken at Vanderbilt in Italy, with departmental approval

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 42 hours of course work, and a semester of study abroad in Italy is recommended. Prospective majors should consult with the director of undergraduate studies in Italian and the director of European Studies. Course work for the joint major is distributed as follows:

Italian (24 hours)

Italian language and literature (12 hours): ITAL 201W, 220, 230, 231, or appropriate substitute in consultation with the adviser in Italian
Italian culture and civilization (9 hours): ITAL 214, 232, 233, 235, 239, or 240
Electives (3 hours): Other Italian content course approved by the director of undergraduate studies in Italian

European Studies (18 hours)

European Studies core courses (9 hours): EUS 201, 203, and 250 (requires thesis)
Social Science (3 hours): PSCI 210, 211 or appropriate substitute with the approval of the EUS adviser
History (3 hours): HIST 226, 227, 228, 229.
Humanities (3 hours): EUS 240; HART 218 or 219

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 101a. 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.

Course descriptions begin on page 185.

Italian

Students who have not studied Italian in high school should begin their studies at Vanderbilt in Italian 101a–101b.

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.

Course descriptions begin on page 197.

Germanic and Slavic Languages

CHAIR Meike G. Werner
DIRECTOR OF UNDERGRADUATE STUDIES IN GERMAN James McFarland
DIRECTOR OF UNDERGRADUATE STUDIES IN RUSSIAN Tatiana Filimonova
DIRECTOR OF GRADUATE STUDIES Barbara Hahn
PROFESSORS EMERITI Konstantin V. Kustanovich, John A. McCarthy
PROFESSORS Barbara Hahn, Lutz Koepnick
DISTINGUISHED MAX KADE VISITING PROFESSOR Jan Bürger
ASSOCIATE PROFESSORS Meike G. Werner, Christoph Zeller
VISITING ASSOCIATE PROFESSOR Johannes Endres
ASSISTANT PROFESSORS James McFarland, Margaret Setje-Eilers
MELLON ASSISTANT PROFESSOR Tatiana Filimonova
LECTURERS David Matthew Johnson, Jason Strudler

THE Department of Germanic and Slavic Languages offers programs of concentration in German language and literature, German studies, and Russian.

Students in the German program take a wide variety of courses in the language, culture, and literature of German-speaking countries. Additional courses in history of art, European studies, history, philosophy, political science, and humanities complement the offerings in the German department. The Vanderbilt in Germany programs at the University in Regensburg and in Berlin provide students with unique opportunities to study German language and culture in a native context. On the Vanderbilt campus, students often choose to live in the German hall at McTyeire International House where they practice German in everyday situations with an international group of undergraduate and graduate students from many disciplines. Delta Phi Alpha (the National German Honorary Society) offers opportunities for student-organized extracurricular events. Various lectures are presented by scholars of national and international renown each semester; symposia sponsored by the department are also open to our students. In a less formal setting, interested students and faculty gather weekly for Kaffeestunde. For further information see *vanderbilt.edu/german*.

The Russian program has a special commitment to undergraduate training in all aspects of Russian culture and language. Students choose from a wide variety of courses: the program offers survey sequences on nineteenth- and twentieth-century Russian literature and culture as well as such courses as Jews in Russian Culture, Stalin's Evil Empire, Russian Cinema, Crime and Punishment, and Short Russian Novels. The department offers majors in Russian and in Russian and European studies. Students can also minor in Russian or Russian area studies. Students considering majoring in Russian should consult with the director of undergraduate studies in Russian early in their studies to design an individual program. Many students find it beneficial to combine a Russian major with a second concentration in a related field. Students have the opportunity to spend a semester, a summer, or a May session studying in Russia.

Program of Concentration in German

Program I: German Language and Literature

Students majoring in German are required to take at least 30 hours from courses numbered higher than 105, not including German 245–246. German 223 is highly recommended. The following are required:

6 hours in German 213, 214, or 216	6
6 hours in German 221, 222	6
9 hours in German beyond 222	9
9 hours in German electives	9
Total hours:	30

Please note that majors are permitted a maximum of 6 hours of German courses in which the language of instruction is English. Majors are expected to consult their advisers before registration each semester.

Program II: German Studies

Students majoring in German studies are required to complete a total of 30 hours of course work beyond GER 105, including the following:

German 201W	3
3 hours in German 213, 214, or 216	3
6 hours in German 221 and 222	6
6 hours of German beyond 222	6
6 hours in "German text" courses (defined below)	6
6 hours in "German content" courses (defined below)	6
Total hours:	30

Minor in German

Program I: German Language and Literature

The minor in German consists of a minimum of 18 hours of course work beyond or above the level of German 105, excluding German 245–246 and courses taken as independent study. Specific requirements are as follows:

3 hours from German 213 or 214	3
6 hours from German 221 and 222	6
6 hours from German 220 and above	6
3 hours of one elective course	3
Total hours:	18

Program II: German Studies

The minor in German studies consists of a minimum of 18 hours of course work as follows:

German 201W	3
3 hours from German 213, 214, or 216	3
6 hours from German 221 and 222	6
3 hours of German above German 223	3
3 hours of one elective course	3
Total hours:	18

A "German text" course is one in a discipline other than German literature (such as German history, women's and gender studies, political science, religious studies, philosophy), which may be taught in English and in which the student reads course texts in German to a significant degree (e.g., more than half the texts would be read in the original German). A "German content" course focuses on German literature or a neighboring discipline (such as German history, German political science, or German philosophy) in which course texts may be read in English or German. Students must consult the instructor of the course regarding "German text" courses, and they must secure the approval of the director of German Studies for both "German text" and "German content" courses. "Elective courses" must be approved by the director of undergraduate studies.

German Majors

In addition, students selecting this concentration will be tested for language proficiency their junior year and will be required to write a senior paper due the semester prior to graduation. The director of undergraduate studies in German should be consulted for precise details on these special learning outcome assessments.

German Studies Majors

In addition, students selecting this concentration will be tested for language proficiency their junior year and will be required to write a senior paper due the semester prior to graduation. The director of undergraduate studies in German should be consulted for precise details on these special learning outcome assessments.

Vanderbilt in Germany Program in Regensburg

Students who have completed German 103 or the equivalent are invited to spend the spring semester during their sophomore, junior, or senior year at the University of Regensburg in southern Germany. Regensburg is a beautiful medieval city on the Danube, near Munich, with a vibrant university campus. The Vanderbilt in Germany program is unique in that, following an intensive language review, students are permitted to enroll full time at the university. They select courses from a wide variety of disciplines, including literature, history, economics, the natural sciences, and the fine arts. A faculty member accompanies the students throughout the semester as resident director. Students receive full academic credit for course work completed in Regensburg.

Students with a strong interest in spending an entire year at the University of Regensburg should consult with the department. Departmental travel scholarships are available.

Vanderbilt in Berlin

The objective of the seven-week, seven-credit Vanderbilt in Berlin summer study abroad program is to offer students an opportunity to begin studying German, improve German language skills, and take courses in English and German. After participating in a weeklong orientation course on the history and culture of Berlin (1 credit), students take two six-week courses (6 credits) or one intensive language course (6 credits) for those without previous knowledge of German. All courses include regular excursions to course-related locations. Students benefit from daily linguistic and cultural contact in the authentic environment of Berlin, the historical and cultural nexus of Germany. A limited number of scholarships are available.

Honors Program

Candidates for honors in German who meet College of Arts and Science and departmental requirements must complete all requirements for the concentration in German and, in addition, must study a minimum of one semester at a German-speaking university (or gain the equivalent experience), complete 6 hours of 300-level courses beyond the basic course requirement; maintain at least a *B+* average in their German courses and a *B* overall average; write an honors thesis; and pass an oral examination during the last semester.

Goethe-Institut Certificate in Business German

The department serves as a test center for the Goethe-Institut, administering the Zertifikat Deutsch für den Beruf (ZDfB), a certificate in Business German recognized by businesses worldwide. The exam is offered in conjunction with the Business German course.

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 42 hours of course work. A semester of study abroad in the Vanderbilt in Germany program is recommended. Course work for the major is distributed as follows:

German (24 hours)

Introduction to German Studies (3 hours): GER 201W
German language and culture (3 hours): GER 213 or 214
German civilization (6 hours): GER 221, 222
German literature and culture (12 hours): GER 223, 235, 241, 243, 248, 262-266, 269, 274, 275, 278, 280, or appropriate substitute approved by the director of undergraduate studies in German

European Studies (18 hours)

European Studies core courses (9 hours): EUS 201, 203, and 250 (requires thesis)

Social Science (3 hours): PSCI 210, 211 or appropriate substitute with the approval of the EUS adviser

History (3 hours): HIST 172, 226, 227, 228, 229, 230, or other appropriate course selected in consultation with the EUS adviser

Humanities (3 hours): EUS 240, 260 (Berlin or Vienna) or other appropriate course selected in consultation with the EUS adviser

Program of Concentration in Russian and European Studies

Students pursuing the interdisciplinary major in Russian and European Studies combine their focus on Russian language and literature with a study of modern Europe in its political, economic, and cultural diversity. Students may elect this interdisciplinary major consisting of 42 hours of course work. A semester of study abroad in Russia is recommended. Course work for the major is distributed as follows:

Russian (24 hours)

Russian language (12 hours): RUSS 203, 204, 223, 224 or appropriate substitute as approved by the director of undergraduate studies in Russian

Russian literature and culture (6 hours): RUSS 183, 231, 232, 234, 250 or appropriate substitute as approved by the director of undergraduate studies in Russian

Electives (6 hours): MUSL 244, EUS 260 (when offered in a Russian city), or other course with Russian topic approved by the director of undergraduate studies in Russian

European Studies (18 hours)

European Studies core courses (9 hours): EUS 201, 203, 250 (requires thesis)

Social Science (6 hours): PSCI 210, 211, 222, or appropriate substitute from any other social studies discipline with approval of the EUS adviser

European History (3 hours): HIST 172, 173, 209, 210 or appropriate substitute approved by the EUS adviser

Program of Concentration in Russian

Requirements for a major are a minimum of 27 hours beginning after 102. Required courses are 203–204, 223–224, and 9 hours of courses in English offered by the Russian program. Hours for study in Russia or in an American summer program may count toward a major, subject to approval of the director of undergraduate studies for Russian. In addition, students selecting this concentration will be tested for language proficiency their junior year and will be required to write a senior paper and give a senior presentation to appropriate faculty. The director of undergraduate studies in Russian should be consulted for precise details on these special learning outcome assessments.

Minor in Russian

A minor in Russian consists of 18 hours of course work taken in the Russian division in addition to Russian 101–102 (or the equivalent). Hours for study in Russia or in an American summer program may count toward a minor, subject to approval of the director of undergraduate studies for Russian.

Minor in Russian Area Studies

Requirements for a minor are 18 hours of course work in addition to Russian 101–102 (or the equivalent). Nine of the hours must be taken in the Russian division; the other nine as approved Russian content courses taken outside the Russian division.

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.

Course descriptions begin on page 187.

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.

Course descriptions begin on page 218.

Hebrew

DIRECTOR OF UNDERGRADUATE STUDIES Martina Urban

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.

Course descriptions begin on page 189.

History

CHAIR James A. Epstein
DIRECTOR OF UNDERGRADUATE STUDIES William Caferro
DIRECTOR OF GRADUATE STUDIES Michael D. Bess
PROFESSORS EMERITI Paul K. Conkin, Jimmie L. Franklin, J. León Helguera, Samuel T. McSeveney, V. Jacque Voegeli, Donald L. Winters
PROFESSORS Celia Applegate, Jeremy Atack, Michael D. Bess, David Blackbourn, Richard J. M. Blackett, William Caferro, William J. Collins, Katherine B. Crawford, Dennis C. Dickerson, Marshall C. Eakin, James A. Epstein, Gerald Figal, Gary Gerstle, Joel F. Harrington, Peter Lake, Jane Gilmer Landers, Elizabeth Lunbeck, Peter L. Rousseau, Thomas Alan Schwartz, Helmut Walser Smith, Arleen M. Tuchman, Daniel H. Usner Jr., David Wasserstein
ASSOCIATE PROFESSORS David Lee Carlton, Leor Halevi, Yoshikuni Igarashi, Sarah Igo, Paul A. Kramer, Catherine Molineux, Moses Ochonu, Matthew Ramsey, Ruth Rogaski, Samira Sheikh, Francis W. Wcislo, Edward Wright-Rios
ASSISTANT PROFESSORS Celso Castilho, Lauren Clay, Julia Phillips Cohen, Adam Ewing, Peter James Hudson, Peter Lorge, Ole Molvig, Claudia Rei, Frank Robinson, Alistair Sponsel
RESEARCH ASSISTANT PROFESSORS Robert Cross, Juliet Wagner
SENIOR LECTURER Yollette T. Jones

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 295, 297, 298a–298b, and 299, courses numbered below 300 are open to all majors and nonmajors. History 295 is limited to seniors and juniors who have previously taken History 200W. History 297, 298a–298b, and 299 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 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 hours in history; no more than 3 hours of AP or IB credit may count toward this total. *Note:* AP and IB credit will not count toward the 15 hours for the concentration. Course work is distributed as follows:

1. 200W or 297 (3 hours)

Note: 200W should be taken as soon as possible and must be taken no later than the second semester of the junior year. 200W is a prerequisite for the 295 capstone course. 297 is limited to second-semester juniors who have been admitted to the Honors Program. Students entering the Honors Program who have already taken 200W will receive elective credit for that course.

2. Five courses in one of the following concentrations (15 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 (115F) in history may be used to satisfy the relevant program concentration with approval of the director of undergraduate studies.

Program A. Asia

105, 106, 107, 108, 109, 116, 120, 188a, 202, 203, 204, 205, 206, 211a, 211b, 212a, 216, 286c, 286e, 287a, 288a, 288d, 288e, and, as appropriate, 294, 295, 296, 297, 298a–298b, 299; ASIA 230; MHS 231.

Program B. Latin America

137, 138, 165, 245, 246, 247, 248, 249, 251, 253a, 254a, 257, 268, 286b, 286d, 288e, 288W, and, as appropriate, 294, 295, 296, 297, 298a–298b, and 299; AADS 205.

Program C. Europe

120, 135, 136, 147, 150, 151, 158, 160, 170, 172, 176, 183, 184, 187, 209, 210, 211a, 216, 217, 219, 222, 223, 225, 226, 227, 228, 229, 230, 231, 234, 238, 239a, 241, 243W, 245, 280, 283, 284a, 285W, 286d, 286e, 286g, 287a, 287c, 287g, 288a, 288c, 288e, 288g, 289a, 289d, and, as appropriate, 291, 294, 295, 296, 297, 298a–298b, and 299; Classical Studies 207, 208, 209, 212, 213, 223; Economics 262, 271; EUS 201, 220; German 182; Jewish Studies 115F.09, 123, 124, 156, 158, 234, 256; Philosophy 210, Religious Studies 216.

Program D. Early America and the United States

120, 139, 140, 141, 142, 144, 150, 153, 165, 166, 172, 173, 174, 184, 187, 243W, 253a, 258, 259, 260, 261, 262, 263, 264, 268, 269, 270, 271, 272a, 272b, 272c, 272d, 275a, 280, 281, 284a, 284b, 285W, 286b, 286d, 286e, 287a, 287b, 287d, 287e, 288a, 288e, 288g, 288W, 291, 293b, 293c, 294, 295, 296, 297, 298a–298b, and 299; AADS 201, 221, 265; Divinity 2750, 3217; Economics 226, 262, 266; HOD 1150; Jewish Studies 124, 252, 256; Medicine, Health, and Society 208.

Program E. Middle East and Africa

119, 120, 127, 128, 211a, 213, 216, 217, 219, 268, 287c, 288a, 288b, 288c, 288e, and, as appropriate, 291, 293b, 293c, 294, 295, 296, 297, 298a–298b, and 299; AADS 102; Classical Studies 223, 224; Jewish Studies 115F-09, 120, 122, 123, 124, 222, 234, 256.

Program F. Global and Transnational

119, 120, 128, 137, 147, 160, 165, 169c, 169d, 170, 172, 174, 183, 184, 187, 188a, 204, 209, 210, 211a, 212a, 216, 217, 219, 243W, 245, 248, 249, 253a, 254a, 257, 270, 271, 272a, 272b, 272c, 283, 286a, 286b, 286d, 286e, 286g, 287c, 287d, 288a, 288d, 288e, 288g, and, as appropriate, 291, 294, 295, 296, 297, 298a–298b, and 299; Jewish

Studies 122, 123, 124, 156, 158, 245, 256; Classics 209, 223, 224; EUS 220; Medicine, Health, and Society 208; Religious Studies 206.

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.

SMT HIST courses: 147, 150, 151, 153, 216, 280, 281, 283, 284a, 284b, 285W, 286e, 288e, and, as appropriate, 294, 295, 296, 297, 298a–298b, and 299; Anthropology 274; Asian Studies 230; Astronomy 203; English 243 or 243W; Mathematics 252; Medicine, Health, and Society 208, 231, 240, 244; Religious Studies 202; and other courses, as appropriate, with approval of the director of undergraduate studies.

3. Capstone course (3–6 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: 293b, Internship Research (3 hours). Must be taken in conjunction with HIST 293a (internship training). Prerequisite: HIST 200W. *Note:* a student may take HIST 293b as an elective before completing HIST 200W but in this case 293b will not count as a capstone course.

Option 2: 295, Majors Seminar (3 hours). Prerequisite: 200W.

Option 3: 284a–289d (except for 286c, 287a, 287d, 288a), 294, Undergraduate Seminar (3 hours). This option requires permission of the director of undergraduate studies. Prerequisite: HIST 200W.

Option 4: 298a–298b, Senior Honors Seminar (6 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 298a but does not take 298b may be considered to have fulfilled the capstone requirement for the major.

4. Electives (6–12 hours, depending on the nature of the capstone course)

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 history.

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 297, Junior Honors Seminar in History (3 hours); History 298a–298b, Senior Honors Research Seminar (6 hours); and 299, Senior Honors Thesis (3 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. The program consists of 45 hours of course work of which 9 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. See the Economics and History section of this catalog for details.

Program of Concentration in English and History

This interdisciplinary program, shared by English and History, requires fewer credit hours (36 hours) than a double major in the two fields. The program includes special team-taught, cross-disciplinary workshops whose topics vary from semester to semester. See the English and History section of this catalog for details.

Minor in History

The minor in history requires a minimum of 18 hours of course work in one area of concentration. No more than 3 hours of AP or IB credit may count toward this total. The following options are offered:

I. Asian History

Six of the courses listed under "Program A. Asia"

II. Latin American History

1. 137 or 138 and
2. Any five of the courses listed under "Program B. Latin America"

III. European History

1. 135 or 136 and
2. Five of the courses listed under "Program C. Europe"

IV. Early America and United States History

1. 139, 140, 141, or 142 and
2. Five of the courses listed under "Program D. Early America and the United States"

V. Middle East and Africa

1. Six of the courses listed under "Program E. Middle East and Africa"

VI. Global and Transnational

1. Six of the courses listed under "Program F. Global and Transnational"

VII. Science, Medicine, and Technology

1. Six of the courses listed under "Program G. Science, Medicine, and Technology," among which no more than two may be courses outside the Department of History.

Course descriptions begin on page 190.

History of Art

CHAIR Kevin D. Murphy
DIRECTOR OF UNDERGRADUATE STUDIES Sheri Shaneyfelt
PROFESSORS EMERITI Robert A. Baldwin, F. Hamilton Hazlehurst, Milan Mihal, Robert L. Mode, Ljubica D. Popovich
PROFESSORS Leonard Folgarait, Vivien Green Fryd, Robin M. Jensen, Christopher M. S. Johns, Kevin D. Murphy
ASSOCIATE PROFESSORS Tracy Miller, Betsey A. Robinson, Barbara Tsakirgis
MELLON ASSISTANT PROFESSOR Halle O'Neal
ASSISTANT PROFESSORS Mireille M. Lee, Elizabeth J. Moodey
SENIOR LECTURERS Sheri Shaneyfelt, Rebecca Keegan VanDiver

THE Department of History of Art treats critically the major fields in world art, from ancient through modern, and serves to connect the arts to the other humanities. Many students will use the program in history of art 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, 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 participate in the activities of the Vanderbilt History of Art Society and work closely with departmental advisers. The society sponsors 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 shares course work with departments and programs in complementary disciplines, including African American and Diaspora Studies, American Studies, Asian Studies, European Studies, Film Studies, Latin American Studies, and Women's and Gender Studies.

Program of Concentration

The history of art major requires 30 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.

Requirements for the Program of Concentration

A 100-level course (3 hours)—one 100-level course in history of art or architecture selected from HART 110, 111, 112, 120, 122, and 125. This course is not a prerequisite for further history of art course work but must be taken at Vanderbilt; AP and transfer credit will not be accepted.

Area requirements (15 hours)—five history of art courses, one each from the following areas:

a. *Ancient:* HART 206, 207, 255, 260W, 262W, 264, 265, 266, 268; CLAS 204, 205, 206, 211, 245
b. *Medieval:* HART 208, 210, 211
c. *Renaissance/Baroque:* HART 213W, 214, 216, 217, 217W, 218, 219, 220, 220W, 221, 222
d. *Modern:* HART 223, 224, 226, 229, 230, 231, 232, 233, 234, 235, 240, 241, 242
e. *Non-Western:* HART 246, 247, 248, 249, 251, 252, 253

Electives (6 hours)—two upper-level courses in history of art (HART 206 to 290) in addition to the area requirements.

Advanced Seminars (6 hours)—HART 295

Honors Program

The Honors Program in History of Art allows exceptional undergraduate students to undertake independent research on a topic in art history in consultation with faculty members. The program is open to all history of art majors with junior standing who meet a 3.25 grade point average in all university courses and a 3.25 grade point average in history of art courses. They must also be approved for acceptance into the honors program by the departmental faculty. Completion of the program requires 9 hours of study: HART 289, 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 298, Honors Research (first semester of the senior year); and HART 299, Honors Thesis (second semester of the senior year); submission of an honors thesis; and successful completion of an oral honors examination. These independent research hours are expected to be in addition to the 30 hours required for the major in history of art. Students meeting these requirements receive honors or highest honors in history of art, depending on the quality of the thesis, grades in art history courses, and examination results. Successful department honors students will receive a Vanderbilt diploma that records honors or highest honors in history of art.

Minor in History of Art

The minor in history of art requires 18 hours of course work, including the following:

Two 100-level courses from 110, 111, 112, 120, 122, and 125, plus any four upper-level history of art courses (HART 206 through 290, and 295).

Minor in History of Architecture

The minor in history of architecture requires 18 hours of course work, including the following:

Two 100-level courses from 110, 111, 112, 120, 122, and 125, plus four upper-level history of art courses selected from HART 210, 211, 229, 232, 235, 246, 247, 248, 249, 251, 252, 253, 255, 260W, 266, 268, 270, and CLAS 204, 205, 206, 211, 245.

Course descriptions begin on page 194.

Honors

COURSES designated "Honors" are parts of a special honors program in liberal education. 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. Students may apply to the associate dean for honors programs for admission to the College Scholars program; only freshmen are considered for admission. An honors seminar will satisfy the requirement for a first-year seminar.

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). In addition to regular credit hours and grade points, they 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 181, 182, 183, 184, 185, or 186; 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 study 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 seminars are designed to cover topics through the intensive analysis afforded by the seminar setting and format. Honors 181, 182, 183, 184, 185, and 186 count toward the AXLE requirements identified by the seminars' titles. Honors 181 challenges students to examine their personal understanding of life and how their individual experiences overlap with those of the rest of human kind. Honors 182 gives significant attention to individual and cultural diversity, multicultural interactions, sexual orientation, gender, racial, ethical, religious, and "Science and Society" issues. Honors 183 studies human behavior at the levels of individuals, their interactions with others, their societal structures, and their social institutions. Honors 184 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. Honors 185 emphasizes quantitative reasoning and prepares students to describe, manipulate, and evaluate complex or abstract ideas or arguments with precision. Honors 186 provides a basis for understanding the diversity of experiences and values in our contemporary, global society.

Course descriptions begin on page 197.

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 280 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 Yollette Jones.

Course descriptions begin on page 197.

Jewish Studies

DIRECTOR Shaul Kelner
ASSOCIATE DIRECTOR Adam S. Meyer
PROFESSORS Robert F. Barsky, Douglas A. Knight, Amy-Jill Levine, Jack M. Sasson, David J. Wasserstein
ASSOCIATE PROFESSORS Nathalie Debrauwere-Miller, Idit Dobbs-Weinstein, Jay Geller, Shaul Kelner, Adam S. Meyer, Allison Schachter, Martina Urban
ASSISTANT PROFESSORS Julia Cohen, Ari Joskowicz, Phillip Lieberman, Paul B. Miller, Nina Warnke

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 other 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 *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. *Foundational course, 3 credit hours.* JS 180 or 180W, Introduction to Jewish Studies.
2. *Language, 6 credit hours.* A year of modern Hebrew (Hebrew 113a–113b, Intermediate Hebrew) or biblical Hebrew (REL 3814, 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. *Focus courses, 12 credit hours* selected from three of four subfields of study:
   - Area 1: Biblical Studies
   - Area 2: Antiquity and the Medieval World
   - Area 3: Modern and Contemporary Experience
   - Area 4: Culture, Philosophy, and Literature
4. *Senior capstone course, 3 credit hours.* JS 296, Senior Project in Jewish Studies. Senior Project proposal must be approved by the director of undergraduate studies.
5. *Electives (minimum of 6 credit hours)*—Any of the courses listed below that is not used to fulfill a requirement towards the major may be counted as an elective with the exception of JS 288a, 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 Jewish Studies in Prague and at the Hebrew University of Jerusalem.

Honors Program

The Honors Program in Jewish Studies affords superior students a more intensive concentration within their major field. To be admitted, students must have:

1. 3.0 cumulative grade point average
2. 3.25 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 298a–298b), including completion of thesis—these credit hours may count as elective credit toward the major. Honors thesis 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. *Foundational course, 3 credit hours.* JS 180 or 180W, Introduction to Jewish Studies.
2. *Focus courses, 6 credit hours.* (See major for categories.)
3. *Electives (minimum of 9 credit hours)*

Any of the courses listed below that is not used to fulfill a 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:** 238, Jewish Language and Paleography. **Classics:** 231, Akkadian. **Hebrew (modern Hebrew):** 111a–111b, Elementary Hebrew; 113a–113b, Intermediate Hebrew; 201, Advanced Hebrew Grammar; 202W, Advanced Hebrew Composition; 289a–289b, Independent Study in Modern Hebrew. **REL (Biblical Hebrew):** 2500–2501, Elementary Biblical Hebrew; 3803, Ben Sira with Introduction to Mishnaic Hebrew (Rabbinic Hebrew); 3814, Intermediate Biblical Hebrew; 3816, Advanced Biblical Hebrew; 3818, Aramaic.

AREA 1. BIBLICAL STUDIES: **Jewish Studies:** 219, The New Testament in Its Jewish Contexts. **English:** 282, The Bible in Literature. **Music Literature:** 219, The Bible and Music. **Religious Studies:** 108, Themes in the Hebrew Bible; 112, Introduction to Judaism; 225, Sexuality in the Hebrew Bible and the Ancient Near East; 226, Ancient Goddesses; 238, Marriage in the Ancient Near East and the Hebrew Bible.

AREA 2. ANTIQUITY AND THE MEDIEVAL WORLD: **Jewish Studies:** 115F-01, In a Pluralistic Age: Jews, Christians, and Muslims in Spain; 120, Islam and the Jews; 122, Classical Judaism: Jews in Antiquity; 123, Jews in the Medieval World; 222, Jews in Egypt; 233, Issues in Rabbinic Literature; 234, Reading across Boundaries: Jewish and Non-Jewish Texts; 257, Topics in Ancient and Medieval Jewish History. **Anthropology:** 104, Introduction to Archaeology; 215, The Collapse of Civilizations. **Classics:** 207, History of the Ancient Near East; 209, Greece and the Near East from Alexander to Theodosius; 213, History of Roman Empire; 224, The Ancient Origins of Religious Conflict in the Middle East. **History:** 216, Medicine in Islam; 217, Islam and the Crusades; 288c, Muslims, Christians, and Jews in Medieval Spain. **History of Art:** 207, Religious Art of the Roman Empire, 100–500 CE. **Philosophy:** 211, Medieval Philosophy; 218, Hellenistic and Late Ancient Philosophy. **Religious Studies:** 254, The Qur'an and Its Interpreters.

AREA 3. MODERN AND CONTEMPORARY EXPERIENCE: **Jewish Studies:** 115F-03, Radical Jews from Karl Marx to Noam Chomsky; 115F-07, From Einstein to Chomsky: Revolutionary Sciences in Jewish America; 115F-09, Jews and Muslims: A Modern History; 124, Perspectives in Modern Jewish History; 125, Modern Israel; 155, American Jewish Life; 156, The Holocaust; 158, The Jewish Diaspora; 240, Modern Jewish Thought; 252, Social Movements in Modern Jewish Life; 256, Power and Diplomacy in the Modern Middle East; 258, Topics in Modern Jewish History; 280, Contemporary Jewish Issues; 288b, Internship Research. **European Studies:** 208, Conspiracy Theories and Rumors in European and U.S. History. **German:** 115F-02, Representing the Holocaust. **History:** 115F-18, The Life, Science, and Times of Albert Einstein; 172, World War II; 209, Russia: Old Regime to Revolution; 210, Russia: The U.S.S.R. and Afterward; 219, Last Empire of Islam; 230, Twentieth-Century Germany; 287c, Cities of Europe and the Middle East; 287d, Immigration, Race, and Nationality: The American Experience. **Political Science:** 230, Middle East Politics. **Religious Studies:** 220W, Constructions of Jewish Identity in the Modern World; 229, The Holocaust: Its Meaning and Implications; 239, Religious Autobiography. **Sociology:** 255, Racial and Ethnic Minorities in the United States.

AREA 4. CULTURE, PHILOSOPHY, AND LITERATURE: **Jewish Studies:** 115F-02, Music and Identity in Jewish Traditions; 115F-04, Civil Rights

and Civil Wrongs: Black–Jewish Relations in the 1950s and 1960s; 115F-05, Gender, Sexuality, and Desire in Jewish Literature; 115F-06, Reading across the Boundaries: Arab and Israeli Literature and Culture; 115F-08, Berlin: Cabaret, Communism, Creativity; 115F-10, Jewish Response to Catastrophe; 136W, Imagining the Alien: Jewish Science Fiction; 137W, Black–Jewish Relations in Post-War American Literature and Culture; 138, Jewish Humor; 138W, Jewish Humor; 139W, American Jewish Music; 162W, American Southern Jews in Life and Literature; 235W, Hebrew Literature in Translation; 237, Coming of Age in Jewish Literature and Film; 237W, Coming of Age in Jewish Literature and Film; 244, Freud and Jewish Identity; 245, Major Themes in Jewish Studies; 248, Jewish Storytelling; 248W, Jewish Storytelling; 249, Jewish Philosophy after Auschwitz; 250, Is G-d Guilty? The Problem of Evil in Judaism; 253W, Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors; 255, Zionism: Politics, Religion, and Ethnicity. **English:** 283, Jewish American Literature. **French:** 258, The Struggle of Encounter: The Israeli-Palestinian Conflict in Literature. **German:** 271, Women at the Margins: German-Jewish Women Writers; 273, Nazi Cinema: The Manipulation of Mass Culture. **History of Art:** 242, Art since 1945. **Music Literature:** 261, Music, Identity, and Diversity. **Philosophy:** 232, Critical Theory; 260, Twentieth-Century Continental Philosophy; 261, Jewish Philosophy; 262, Islamic Philosophy. **Religious Studies:** 140, Great Books of Literature and Religion; 203, Jewish Theories of Religion; 222, Jewish Ethics; 240, The Nature of Evil. Russian: 231, Jews in Russian Culture: Survival and Identity; 234, The Russian Cinema. **Sociology:** 218, Tourism, Culture, and Place; 246, Sociology of Religion.

Course descriptions begin on page 198.

Latin American Studies

DIRECTOR Edward F. Fischer
ASSOCIATE DIRECTORS W. Frank Robinson, Helena Simonett
DIRECTOR OF UNDERGRADUATE STUDIES W. Frank Robinson
DIRECTOR OF GRADUATE STUDIES W. Frank Robinson
ASSISTANT PROFESSOR Helena Simonett
LATIN AMERICAN BIBLIOGRAPHER Paula Covington

Affiliated Faculty

PROFESSORS Susan Berk-Seligson (Spanish), Arthur A. Demarest (Anthropology), Tom D. Dillehay (Anthropology), Katharine Donato (Sociology), Marshall Eakin (History), Edward F. Fischer (Anthropology), Earl E. Fitz (Portuguese), Leonard Folgarait (History of Art), Edward H. Friedman (Spanish), Lesley Gill (Anthropology), Ruth Hill (Spanish), Cathy L. Jrade (Spanish), Jane G. Landers (History), William Luis (Spanish), Philip D. Rasico (Spanish), Mitchell A. Seligson (Political Science), Benigno Trigo (Spanish), David Wasserstein (History)

ASSOCIATE PROFESSORS Dominique Béhague (Medicine, Health, and Society), Victoria Burrus (Spanish and Portuguese), Beth A. Conklin (Anthropology), William R. Fowler Jr. (Anthropology), Jonathan Hiskey (Political Science), John Janusek (Anthropology), Christina Karageorgou (Spanish), Emanuelle Oliveira (Portuguese), Norbert O. Ross (Anthropology), Mariano Sana (Sociology), Tiffiny A. Tung (Anthropology), Steven A. Wernke (Anthropology), Edward Wright-Rios (History), Andrés Zamora (Spanish), Elizabeth Zechmeister (Political Science)

ASSISTANT PROFESSORS Marcio Bahia (Portuguese), José Cárdenas Bunsen (Spanish), Celso Castilho (History), Markus Eberl (Anthropology), Paul B. Miller (French), Amy Non (Anthropology, Medicine, Health, and Society), Efrén O. Pérez (Political Science), W. Frank Robinson (History), Helena Simonett (Blair, Latin American Studies)

SENIOR LECTURERS Frances Alpren (Spanish), Ana Regina Andrade (Economics), Lorraine Catanzaro (Spanish), Paula Covington (Latin American Studies), Sarah Delassus (Spanish), Chalene Helmuth (Spanish), Elena Olazagasti-Segovia (Spanish), Raquel Rincón (Spanish), Waldir Sepúlveda (Spanish), Cynthia Wasick (Spanish)

FOR more than sixty years Vanderbilt has shown a commitment to Latin American studies, becoming one of the first U.S. universities to establish a program of research and teaching in Latin American area studies. Dedicated to excellence in teaching, research, and community outreach, Vanderbilt's Center for Latin American Studies promotes greater understanding of the region's history, culture, political economy, and social organization. The center draws upon renowned Vanderbilt faculty from the Departments of Anthropology, Economics, History, History of Art, Political Science, Sociology, and Spanish and Portuguese as well as faculty from our education, engineering, law, management, medical, music, and nursing schools. It fosters a lively research community on campus by sponsoring colloquia, conferences, films, and a speakers series that brings distinguished scholars, government and business leaders, and social activists to campus.

The center's special strengths lie in Mesoamerican and Andean anthropology and archaeology; the history, politics, languages, and literatures of Brazil; Spanish-American literature and languages; comparative political systems; and Caribbean studies. Members of our faculty conduct research and publish on most countries in Latin America.

For undergraduates, the center offers a broad-based, interdisciplinary education through its major and minor programs in Latin American studies. The program encourages students to study abroad in Latin American countries. An honors program is available.

A&S

Program of Concentration in Latin American Studies

The major in Latin American studies consists of 36 hours plus a language requirement.

I.	Language requirement	demonstrated proficiency
II.	Core courses	6 hours
III.	Distribution requirements	12 hours
IV.	Area of concentration	12 hours
V.	Electives	6 hours

Note: No course may be counted twice in calculating the 36 hours. Upon approval of the Committee on Individual Programs and the student's adviser, (a) as many as 6 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, 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 203, 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 104, Portuguese 200, or Anthropology 269 (indigenous language). Individual standardized testing may also be used to demonstrate knowledge.

II. Core Courses (6 hours)

LAS 201, Introduction to Latin America
LAS 290, Interdisciplinary Research Methods

III. Distribution Requirements (12 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)
C) Social Sciences (Departments of Anthropology, Economics, Political Science, Sociology).

IV. Area of Concentration (12 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: 137, Colonial Latin America; 138, Modern Latin America; 245, Reform, Crisis, and Independence in Latin America, 1700–1820; 246, Colonial Mexico; 247, Modern Mexico; 248, Central America; 249, Brazilian Civilization; 251, Reform and Revolution in Latin America; 253a, Latin America and the United States; 254a, Race and Nation in Latin America; 257, Caribbean History, 1492–1983; 294, Selected Topics in History; 296, Independent Study.

LATIN AMERICAN STUDIES: 202, Introduction to Brazil.

B. Language, Literature, History of Art.

HISTORY OF ART: 289, Independent Research; 295, Advanced Seminar in History of Art.

LATIN AMERICAN STUDIES: 202, Introduction to Brazil; 231, Music of Protest and Social Change in Latin America.

PORTUGUESE: 102, Intensive Elementary Portuguese; 200, Intermediate Portuguese; 201, Portuguese Composition and Conversation; 203, Brazilian Pop Culture; 205, Introduction to Luso-Brazilian Literature; 225, Brazilian Culture through Native Material; 232, Brazilian Literature through the Nineteenth Century; 233, Modern Brazilian Literature; 289, Independent Study; 291, Brazilian Civilization through English Language Material; 294, Special Topics in Portuguese Language, Literature, or Civilization.

SPANISH: 104, Intermediate Spanish; 203, Introduction to Spanish and Spanish American Literature; 204, Introduction to Hispanic Cultural Studies; 206, Spanish for Business and Economics; 207, Advanced Conversation; 208, Advanced Conversation through Cultural Issues in Film; 210, Spanish for the Legal Profession; 211, Spanish for the Medical Profession; 213, Translation and Interpretation; 214, Dialectology; 219, History of the Spanish Language; 221, Spanish Civilization; 227, Film and Culture in Latin America; 230, Development of Lyric Poetry; 231, The Origins of Spanish Literature; 232, Literature of the Spanish Golden Age; 234, Spanish Literature from 1900 to the Present; 235, Spanish American Literature from the Conquest to 1900; 236, Spanish American Literature from 1900 to the Present; 239, Development of the Novel; 240, The Contemporary Novel; 243, Latino Immigration Experience; 244, Afro-Hispanic Literature; 246, *Don Quixote;* 251, Development of Drama; 256, Love and Honor in Medieval and Golden Age Literature; 260, Development of the Short Story; 274, Literature and Medicine; 275, Latina and Latin American Women Writers; 278, The U.S. in Latin American Literature; 281, The Theory and Practice of Drama; 289, Independent Study; 293, Contemporary Latin American Prose Fiction in English Translation; 294, Special Topics in Hispanic Literature; 295, Special Topics in Spanish Language and Linguistics; 296, Special Topics in Hispanic Culture.

INDIGENOUS LANGUAGES: ANTHROPOLOGY: 221, Maya Language and Literature; 261, Classic Maya Language and Hieroglyphs; 269, Introduction to a Maya Language; 277, Conversational K'iche' Maya; 278, Advanced K'iche' Maya.

C. Social Sciences.

ANTHROPOLOGY: 205, Race in the Americas; 210, Culture and Power in Latin America; 212, Ancient Mesoamerican Civilizations; 213, The Archaeology of the Ancient Maya Civilization; 215, The Collapse of Civilizations; 216, Ancient Cities; 219, Comparative Writing Systems; 224, Political Anthropology; 226, Myth, Ritual, Belief: The Anthropology of Religion; 231, Colonial Encounters in the Americas; 232, The Anthropology of Globalization; 240, Medical Anthropology; 246, Andean Culture and Society; 247, The Aztecs; 248, Ancient Andean Civilizations; 249, Indigenous Peoples of Lowland South America; 250, Anthropology of Healing; 254, The Inca Empire; 281, Classic Maya Religion and Politics; 288a–288b, Independent Research; 294, Special Topics.

ECONOMICS: 222, Latin American Development; 288, Development Economics; 291a–291b, Independent Study in Economics.

Note: Students who successfully complete an Economics course on this list numbered 260W or higher may also receive Area of Concentration credit for successfully completing either Economics 231 or 232.

POLITICAL SCIENCE: 213, Democratization and Political Development; 217, Latin American Politics; 219, Politics of Mexico; 225, International Political Economy; 228, International Politics of Latin America; 287, Selected Topics; 289a–289b, Independent Research.

SOCIOLOGY: 274, Immigration in America; 279, Contemporary Mexican Society; 299, Independent Research and Writing.

V. Electives (6 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 3.0 general 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 hours in LAS 289a and 289b; 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 hours of approved courses with Latin American content including Latin American Studies 201. In addition, students must demonstrate intermediate knowledge of one Latin American language by successfully completing Spanish 104, Portuguese 200, or Anthropology 269 (indigenous language). Courses taken to satisfy the language requirement may not be counted toward the 15 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 Center for Latin American Studies.

Minor in Brazilian Studies

The Center for Latin American Studies also offers a minor in Brazilian studies. Students must complete 15 credit hours of

approved courses with Brazilian content including LAS 202 and Portuguese 200. 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 200.

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 202: Introduction to Brazil
2. 3 credit hours of PORT 200: Intermediate Portuguese (PORT 102 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: 201, Portuguese Composition and Conversation; 205, Introduction to Luso-Brazilian Literature; 232, Brazilian Literature through the Nineteenth Century; 233, Modern Brazilian Literature.

Area of Study II: Brazilian Society, History, and Cultures

ANTHROPOLOGY: 249, Indigenous Peoples of Lowland South America.

HISTORY: 249, Brazilian Civilization.

PORTUGUESE: 203, Brazilian Pop Culture; 225, Brazilian Culture through Native Material; 291, Brazilian Civilization through English Language Material; 295, 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: 140, Blacks in Latin America and the Caribbean; 145, Atlantic African Slave Trade.

ANTHROPOLOGY: 210, Culture and Power in Latin America.

ECONOMICS: 222, Latin American Development.

HISTORY: 137, Colonial Latin America; 138, Modern Latin America; 245, Reform, Crisis, and Independence in Latin America, 1700–1820; 251, Reform and Revolution in Latin America; 254a, Race and Nation in Latin America.

POLITICAL SCIENCE: 217, Latin American Politics; 228, International Politics of Latin America.

SOCIOLOGY: 277, Contemporary Latin America.

Course descriptions begin on page 200.

Latino and Latina Studies

DIRECTOR William Luis

LATINO and Latina Studies focuses on cultural production and political and socioeconomic experiences of people inculcated with the U.S. experience, self-identifying as Latinos and Latinas 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 Latino and Latina 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 203, 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 201, Introduction to Latino and Latina Studies (3 credit hours)
2. SPAN 203, Introduction to Spanish and Spanish American Literature (3 credit hours)

   SPAN 203 requires up to 19 prerequisite credit hours of Spanish language instruction through SPAN 202, depending on departmental placement.
3. ENGL 275, Latino-American Literature (3 credit hours)
4. LATS 280, Latino and Latina Studies Seminar, which is 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 are as follows:

1. LATS 201, Introduction to Latino and Latina Studies (3 credit hours)
2. SPAN 203 or ENGL 275 (3 credit hours)

   If both courses are taken, only one may be applied as elective credit.
3. LATS 280, Latino and Latina Studies Seminar (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.

LATS Approved List of Courses

Category A: Latino and Latina Culture

ENGLISH: 275, Latino-American Literature.

HISTORY: 272c, Race, Power, and Modernity.

HUMAN AND ORGANIZATIONAL DEVELOPMENT: 2510, Health Service Delivery to Diverse Populations.

SOCIOLOGY: 255, Racial and Ethnic Minorities in the United States; 274, Immigration in America.

SPANISH: 202, Spanish for Oral Communication Through Cultural Topics; 203, Introduction to Spanish and Spanish American Literature; 206, Spanish for Business and Economics; 211, Spanish for the Medical Profession; 213, Translation and Interpretation; 243, Latino Immigration Experience; 244, Afro-Hispanic Literature; 275, Latina and Latin American Women Writers.

Category B: Historical Context

AFRICAN AMERICAN AND DIASPORA STUDIES: 220, Colonialism and After.

ANTHROPOLOGY: 210, Culture and Power in Latin America; 212, Ancient Mesoamerican Civilizations; 213, The Archaeology of the Ancient Maya Civilization; 215, The Collapse of Civilizations; 231, Colonial Encounters in the Americas; 247, The Aztecs; 281, Classic Maya Religion and Politics.

ENGLISH: 271, Caribbean Literature.

HISTORY: 138, Modern Latin America; 245, Reform, Crisis, and Independence in Latin America, 1700–1820; 248, Central America; 257, Caribbean History, 1492–1983; 258, American Indian History before 1850; 259, American Indian History since 1850; 286b, U.S. and Caribbean Encounters.

LATIN AMERICAN STUDIES: 201, Introduction to Latin America.

MUSIC LITERATURE: 250, Music in Latin America and the Caribbean.

SPANISH: 240, The Contemporary Novel; 247, Spanish-American Literature of the Boom Era; 274, Literature and Medicine; 281, The Theory and Practice of Drama; 295, Special Topics in Spanish Language and Linguistics.

Category C: Critical Perspectives

AFRICAN AMERICAN AND DIASPORA STUDIES: 101, Introduction to African American and Diaspora Studies.

PHILOSOPHY: 246, Philosophy of Language.

POLITICAL SCIENCE: 217, Latin American Politics; 219, Politics of Mexico; 228, International Politics of Latin America; 264W, Global Feminisms.

SOCIOLOGY: 221, Environmental Inequality and Justice; 236, Class, Status, and Power; 253, Racial Domination, Racial Progress; 279, Contemporary Mexican Society.

WOMEN'S AND GENDER STUDIES: 150, Sex and Gender in Everyday Life; 150W, Sex and Gender in Everyday Life; 201, Women and Gender in Transnational Context.

Course descriptions begin on page 201.

Managerial Studies

DIRECTOR Cherrie C. Clark
ASSOCIATE DIRECTOR William W. Damon
PROFESSOR William W. Damon
ADJUNCT PROFESSORS Corey M. Cleek, David H. Furse, Stuart A. Garber, Bob Isherwood, Patrick R. Leddin, Thomas J. Nagle, Steven A. Pate, David H. Stacey
ASSOCIATE PROFESSORS OF THE PRACTICE Cherrie C. Clark, Kevin M. Clark, Alice R. Goodyear, Arthur J. Johnsen, Gary R. Kimball, Brent Trentham
ADJUNCT ASSOCIATE PROFESSORS Janet M. McDonald, Timothy F. Logan, Garnett Slatton
LECTURERS C. Brian Fox, Joseph J. Rando

THE College of Arts and Science offers a series of minors in the liberal arts tradition to help students understand management functions, corporate strategy, financial economics, and organizational leadership. These minors are administered by the Managerial Studies program. Each of the minors has a distinct focus and all have a basis in economics and accounting.

The program is directed by Professor Cherrie Clark, 215 Calhoun Hall, (615) 322-4021.

Minor in Managerial Studies: Corporate Strategy

The minor in corporate strategy requires 18 credit hours.

The following courses are required:
- FNEC 140 Financial Accounting
- MGRL 194 Fundamentals of Management
- MGRL 198 Corporate Strategy

Three elective courses to be chosen from:
- MGRL 190 Principles of Marketing
- MGRL 191 Advanced Marketing
- MGRL 192 Creative Advertising
- MGRL 195 Entrepreneurial Challenge
- MGRL 196 Entrepreneurship: The Business Planning Process
- FNEC 220 Managerial Accounting
- FNEC 240 Corporate Finance
- FNEC 275 Financial Management
- CMST 204 Organizational and Managerial Communication

Minor in Managerial Studies: Financial Economics

The minor in financial economics requires 18 credit hours.

The following courses are required:
- ECON 150 Economic Statistics
  or 155 Intensive Economic Statistics
- FNEC 140 Financial Accounting
- FNEC 240 Corporate Finance

Three elective courses to be chosen from:
- FNEC 220 Managerial Accounting
- FNEC 261 Investment Analysis
- FNEC 275 Financial Management
- ECON 209 Money and Banking
- ECON 259 Financial Instruments and Markets

Mathematics 218, Psychology 209, or Psychology 2101 (Peabody College) may substitute for Economics 150. Economics majors must complete 15 hours of credit in FNEC courses to complete the financial economics minor.

Minor in Managerial Studies: Leadership and Organization

The minor in leadership and organization is a joint program of the College of Arts and Science and Peabody College. The minor requires 18 credit hours.

The following courses are required:
FNEC 140 Financial Accounting
MGRL 194 Fundamentals of Management
HOD 1200 Understanding Organizations

Three elective courses to be chosen from:
MGRL 185 Negotiation
MGRL 198 Corporate Strategy
HOD 1700 Systematic Inquiry
HOD 2700 Leadership in Theory and Practice
HOD 2710 Challenges of Leadership
HOD 2720 Advanced Organization Theory
HOD 2730 Introduction to Human Resources Development
HOD 2740 Human Resource Management

Minors may be combined with any departmental or interdisciplinary major; however, the minor in managerial studies must include 15 credit hours that are being counted solely toward the minor.

Students electing a second minor in managerial studies must complete at least 12 credit hours counted solely toward the second minor.

Financial Economics

Course descriptions begin on page 185.

Managerial Studies

Course descriptions begin on page 201.

Mathematics

CHAIR Dietmar Bisch
VICE CHAIR Mike Neamtu
DIRECTOR OF UNDERGRADUATE STUDIES John Rafter
DIRECTOR OF GRADUATE STUDIES Akram Aldroubi
PROFESSORS EMERITI Richard F. Arenstorf, Billy F. Bryant, Richard R. Goldberg, Matthew Gould, Robert L. Hemminger, Ettore F. Infante, Bjarni Jónsson, Richard J. Larsen, Michael D. Plummer, Eric Schechter, Horace E. Williams
PROFESSORS John F. Ahner, Akram Aldroubi, Dietmar Bisch, Philip S. Crooke III, Emmanuele DiBenedetto, Paul H. Edelman, Mark N. Ellingham, Yanqin Fan, Douglas P. Hardin, C. Bruce Hughes, Vaughan F. R. Jones, Gennadi Kasparov, Ralph N. McKenzie, Michael L. Mihalik, Mike Neamtu, Alexander Olshanskiy, Denis Osin, John G. Ratcliffe, Edward B. Saff, Mark V. Sapir, Larry L. Schumaker, Gieri Simonett, Constantine Tsinakis, Glenn F. Webb, Daoxing Xia, Dechao Zheng
ADJOINT PROFESSORS Don Hong, Mary Ann Horn, Xiaoya Zha
ASSOCIATE PROFESSORS Alexander Powell, Steven T. Tschantz
VISITING ASSOCIATE PROFESSOR Alexander Katz
ASSISTANT PROFESSORS Roza Aceska, Yago Antolin-Pichel, Arnaud Brothier, Cameron Browne, Chris Conidis, Remi Coulon, Darren Creutz, Marcelo Disconzi, Timothy Ferguson, Michael Goff, Alexandr Kazda, Caner Koca, Charles Martin, Matthew Moore, Jesse Peterson, Rares Rasdeaconu, Jorge Carlos Román, Brian Simanek, Rebecca Steiner, Ioana Suvaina
ADJOINT ASSISTANT PROFESSOR Colette Calmelet
VISITING ASSISTANT PROFESSORS Jose Gil-Ferez, Alexander Kolpakov
SENIOR LECTURER EMERITA Jo Ann W. Staples
SENIOR LECTURERS Derek Bruff, Linda Hutchison, Pamela Pigg, John Rafter, Lori Rafter, Jakayla Robbins

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 plan 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 hours in mathematics, as follows.
1. A calculus sequence: 150a–150b–170–175, or 155a–155b–175, or 155a–155b–205a–205b.
2. Linear algebra and differential equations: 204 or 205a–205b, and 208.
3. At least 15 additional hours from 200, 210, or above 210.
4. The remainder of the hours must be chosen from 200, 210, or above 210.

Program II (Applied Track).
At least 29 hours in mathematics and 6 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 194, 204, or 205a–205b, and one of 198 or 208; or
   (b) 196 and either 204 or 205a–205b.
3. At least 12 additional hours from 200, 210, or above 210, excluding 252.
4. The remainder of the hours in mathematics must be chosen from 200, 210, or above 210.
5. At least 6 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 hours in mathematics, 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 hours of advanced coursework,
   (a) including four courses taken from the following

three categories, at least one from each category:
1) Algebra: 223, 283a, 283b.
2) Analysis: 260, 261, 330a, 330b.
3) Topology and Geometry: 242, 243, 270, 272a, 272b.
(b) The remainder of the 21 hours must be chosen from 200, 210, or above 210, excluding 269.

4. The remainder of the hours must be chosen from 200, 210, or above 210.

Students who complete Program III and, in addition, complete a senior thesis 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. A minimum grade point average of 3.6 in mathematics.
3. Completion of a senior thesis in Math 269 (3 credit hours) 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 an NSF-sponsored REU program.
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 honors.

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 carry a minimum grade point average of 3.6 in mathematics.

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 269 during one semester of their senior year. Math 269 will not count toward the 21 hours requirement in Program III.

Students who declared their mathematics major prior to fall 2010 may complete the Honors Program under the old regulations. Please consult the director of undergraduate studies for details.

Minor in Mathematics

The minor in mathematics requires at least 15 hours in mathematics, including:

1. Completion of a calculus sequence: 175 or 205a–205b.
2. Linear algebra and differential equations: as in the Program II major.
3. At least 6 hours not used to satisfy item 2 from 200, 210, or above 210.

Completion of a single-variable sequence (150a–150b–170, or 155a–155b) is a prerequisite for the minor, but does not count toward the 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:
140; 150a–150b–170–175; 155a–155b–175.
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 155a–155b–175 sequence.

First-year students with test scores of 5 on the Calculus BC advanced placement examination, thereby earning AP credit for 155a–155b, may choose to enroll in the 205a–205b sequence. The combination of 205a–205b is a blend of multivariable calculus and linear algebra, with an emphasis on rigorous proofs.

Duplicate Credit Policies

Deduction of credit caused by duplication proceeds as follows. Students who earned math credit

1. through Advanced Placement/International Baccalaureate in one sequence and complete a course at Vanderbilt from another sequence that duplicates this credit will lose credit from the Advanced Placement/International Baccalaureate earnings.
2. by transfer in one sequence and complete a course at Vanderbilt from another sequence that duplicates this credit will lose credit from the Vanderbilt course.
3. at Vanderbilt in one sequence and complete a course at Vanderbilt from another sequence that duplicates this credit will lose credit from the second Vanderbilt course.

Courses in Mathematics are classified as follows:

210–239: Intermediate Undergraduate Courses

240–269: Advanced Undergraduate Courses

270–299: Introductory Graduate or Advanced Undergraduate Courses

Course descriptions begin on page 202.

Medicine, Health, and Society

DIRECTOR Jonathan M. Metzl
ASSISTANT DIRECTORS JuLeigh Petty, Elisabeth H. Sandberg
DIRECTOR OF UNDERGRADUATE STUDIES Courtney S. Muse
DIRECTOR OF GRADUATE STUDIES Jonathan M. Metzl
PROFESSORS Jonathan M. Metzl, Hector Myers
ADJOINT PROFESSOR Daniel L. Howard
ASSOCIATE PROFESSORS Dominique Béhague, Derek Griffith, Martha W. Jones
ASSISTANT PROFESSORS Aimi Hamraie, Kenneth MacLeish, Amy Non, Lijun Song, Laura Stark
SENIOR LECTURERS Lindsey Andrews, Courtney S. Muse, JuLeigh Petty

Affiliated Faculty
PROFESSORS Kathryn Anderson (Economics), Victor Anderson (Christian Ethics), Michael Bess (History), James Blumstein (Health Law and Policy), Frank Boehm (Obstetrics and Gynecology), Peter Buerhaus (Nursing), Christopher Carpenter (Economics), Vera Chatman (Human and Organizational Development), Larry Churchill (Medicine), Ellen Clayton (Pediatrics and Law), Jay Clayton (English), Bruce Compas (Psychology and Human Development), Katherine Crawford (History), Kate Daniels (English), Richard D'Aquila (Infectious Diseases), Carolyn Dever (English), Dennis Dickerson (History), Katharine Donato (Sociology), Volney Gay (Religious Studies), Lenn Goodman (Philosophy), Douglas Heimburger (Medicine), Joni Hersch (Law and Economics), David Hess (Sociology), George Hill (Microbiology and Immunology), Carl Johnson (Biological Sciences), John Lachs (Philosophy), Jane Landers (History), Jana Lauderdale (Nursing), Pat Levitt (Pharmacology), Elizabeth Lunbeck (History), Leah Marcus (English), Richard McCarty (Psychology), Timothy McNamara (Psychology), Velma McBride Murry (Human and Organizational Development), Linda Norman (Nursing), Sharon Shields (Human and Organizational Development), John Tarpley (Surgery), Benigno Trigo (Spanish), Arleen Tuchman (History), Holly Tucker (French), R. Jay Turner (Sociology), Sten Vermund (Pediatrics and Global Health), 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 Gregory Barz (Ethnomusicology), Mark Bliton (Medicine), Tony N. Brown (Sociology), Karen Campbell (Sociology), Laura Carpenter (Sociology), André Christie-Mizell (Sociology), Beth Conklin (Anthropology), Elizabeth Heitman (Medicine), Kathleen Hoover-Dempsey (Psychology and Human Development), Sarah Igo (History), Melanie Lutenbacher (Nursing), Terry A. Maroney (Law), Ifeoma Nwankwo (English), Scott Pearson (Surgery), Matthew Ramsey (History), Ruth Rogaski (History), Norbert Ross (Anthropology), Russell Rothman (Medicine), David Schlundt (Psychology), Tiffiny Tung (Anthropology)
RESEARCH ASSOCIATE PROFESSOR Melissa McPheeters (Medicine)
ASSISTANT PROFESSORS Carolyn Audet (Preventive Medicine), Tyson Brown (Sociology), Barbara Clinton (Nursing and Medicine), Carol Etherington (Nursing), Joseph B. Fanning (Medicine), Julián F. Hillyer (Biological Sciences), Rolanda Johnson (Nursing), Jennifer Lee (Medicine), Chase Lesane-Brown (Psychology and Human Development), Chandra Y. Osborn (Medicine), Evelyn Patterson (Sociology), Michele Salisbury (Nursing), Kevin T. Seale (Biomedical Engineering), Timothy J. Vogus (Management and Organization Studies)
SENIOR LECTURERS Lorraine Catanzaro (Spanish), Russell M. McIntire Jr. (Philosophy), Elisabeth H. Sandberg (Psychology)
LECTURER Kyle Brothers (Pediatrics)

THE Center for Medicine, Health, and Society offers an interdisciplinary major (36 hours) and minor (18 hours) for students interested in studying health-related beliefs and practices in their social and cultural contexts. 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. It will be of particular interest to students preparing for careers in a health-related profession but will have much to offer any student open to 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 hours of course work, distributed as follows:

Note: No more than 21 credit hours may be in courses designated 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.

1. Core Courses – Students must complete three courses from three of the following eleven options (9 hours):
   - Anthropology 240, Medical Anthropology, OR Anthropology 250, Anthropology and Healing
   - Biological Sciences 105, Human Biology;
   - Economics 268, Economics of Health, OR Economics 221, Health Care Policy
   - History 280, Modern Medicine, OR Asian Studies 230, Chinese Medicine
   - MHS 201, Fundamental Issues in Medicine, Health, and Society
   - MHS 202, Perspectives on Global Public Health, OR MHS 203, U.S. Public Health Ethics and Policy
   - MHS 205W, Medicine and Literature, OR Spanish 274, Literature and Medicine
   - MHS 248, Medical Humanities
   - Philosophy 108, 108W, Introduction to Medical Ethics, OR Philosophy 270, Ethics and Medicine
   - Psychology 268
   - Sociology 237, Society and Medicine, OR Sociology 268, Race, Gender, and Health.

Note: Students may take, for example, both Anthropology 240 and Anthropology 250, but one course will be counted toward the core and the other(s) will count toward electives.

2. Electives — Nine additional courses, chosen from the following list of other approved courses (27 hours).

In order to graduate with a major in MHS, students must take a written exam in the spring semester of their senior year. (Students who are away during the spring semester of their senior year because they are studying abroad or graduating early should schedule the exam during the fall 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.

ANTHROPOLOGY: 208, Food Politics in America; 240, Medical Anthropology; 241, Biology and Culture of Race; 242, Biology of Inequality; 244,

A&S

Social and Health Consequences of Pandemics; 250, Anthropology of Healing; 260, Medicine, Culture, and the Body (same as History 283); 267, Death and the Body; 270, Human Osteology; 272, Genetic Anthropology Lab Techniques; 273, Human Evolutionary Genetics; 274, Health and Disease in Ancient Populations.

ASIAN STUDIES: 230, Chinese Medicine.

BIOLOGICAL SCIENCES: 105, Human Biology; 243, Genetics of Disease; 245, Biology of Cancer; 254, Neurobiology of Behavior.

BASIC BIOMEDICAL SCIENCES OPTION: Up to SIX HOURS from the following list may be counted for the major. Biological Sciences 110a–110b, Introduction to Biological Sciences; Biological Sciences 220, Biochemistry; Chemistry 220a–220b or 218a–218b,Organic Chemistry; Nursing 210a–210b, Anatomy and Physiology; Nursing 231a, Introduction to Nutrition, and 231b, Nutrition and Health.

ECONOMICS: 221, Health Care Policy; 268, Economics of Health.

ENGLISH: 243W, Literature, Science, and Technology (as appropriate); 291, Special Topics in Creative Writing (as appropriate). *Note:* Topics vary; the director of the MHS program will approve versions with sufficient MHS content for credit toward the major or minor.

FRENCH: 205, Medical French in Intercultural Contexts.

HISTORY: 183, Sexuality and Gender in the Western Tradition to 1700; 184, Sexuality and Gender in the Western Tradition since 1700; 216, Medicine in Islam; 280, Modern Medicine; 281, Women, Health, and Sexuality; 283, Medicine, Culture, and the Body (same as Anthropology 260); 284a, Epidemics in History; 284b, Health and the African American Experience; 284c, Psychological Century.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 2510, Health Service Delivery to Diverse Populations; 2525, Introduction to Health Services; 2530, Introduction to Health Promotion; 2535, Introduction to Health Policy; 2550, Managing Health Care Organizations; HOD-2670, Introduction to Community Psychology (same as PSY-PC-2470); 2690, Health Promotion Delivery.

MEDICINE, HEALTH, AND SOCIETY: 099, Commons Seminar; 100, Introduction to Medicine, Health, and Society; 115F, First-Year Writing Seminar; 170, Politics of Health; 180, Racial and Ethnic Health Disparities; 201, Fundamental Issues in Medicine, Health, and Society; 202, Perspectives on Global Public Health; 203, U.S. Public Health Ethics and Policy; 204, Global Health and Social Justice; 205W, Medicine and Literature; 208, American Medicine and the World; 210, Health Social Movements; 212, War and the Body; 220, Narrative Medicine: Stories of Illness and the Doctor-Patient Relationship; 225, Death and Dying in America; 231, Chinese Society and Medicine; 232, Masculinity and Men's Health; 234, Men's Health Research; 235, Community Health Research; 236, HIV/AIDS in the Global Community; 237, Caring for Vulnerable Populations; 240, Social Capital and Health; 244, Medicine, Law, and Society; 245, Medicine, Technology, and Society; 246, Medicine, Religion, and Spirituality; 248, Medical Humanities; 250, Autism; 252, Psychiatry, Culture, and Globalization; 254, Perspectives on Trauma; 290, Special Topics; 293a–293b, Internship (*Note:* 293a, Internship Training, must be taken Pass/Fail and concurrently with 293b, Internship Research and Readings; these hours may not be included in the minimum hours required for the MHS major or minor); 294a–294b, Service Learning (*Note:* 294a, Service Learning, must be taken Pass/Fail and concurrently with 294b, Service Learning Readings and Research and/or an MHS-designated course. These hours may not be included in the minimum hours required for the MHS major or minor); 295, Undergraduate Seminar; 296, Independent Study; 297, Honors Research; 298, Honors Thesis.

NEUROSCIENCE: 201, Neuroscience; 235, Biological Basis of Mental Disorders.

PHILOSOPHY: 108, 108W, Introduction to Medical Ethics; 239, 239W, Moral Problems; 256, Philosophy of Mind; 270, Ethics and Medicine.

POLITICAL SCIENCE: 268, American Health Policy.

PSYCHOLOGY: 101, General Psychology; 211, Personality; 214, Perception; 215, Abnormal Psychology; 232, Mind and Brain; 244, Introduction to Clinical Psychology OR PSY-PC-2700, Introduction to Clinical Psychology; 245, Emotion; 246, Schizophrenia; 247, Depression; 252, Human Sexuality; 268, Health Psychology OR PSY-PC-2560, Health Psychology; 277, Brain Damage and Cognition; PSY-PC-1200, PSY-PC-1207, Minds, Brains, Cultures, and Contexts; PSY-PC-1500, Cognitive Aspects of Human Development; PSY-PC-1630, Developmental Psychology; PSY-PC-1700, PSY-PC-1707, Social and Emotional Context of Cognition; PSY-PC-1750, Social and Personality Development; PSY-PC-2100, Advanced Topical Seminar (approval dependent upon topic); PSY-PC-2250, Infancy; PSY-PC-2320, Adolescent Development; PSY-PC-2470, Introduction to Community Psychology (same as HOD-2670).

RELIGIOUS STUDIES: 202, Natural Science and the Religious Life; 234, Post-Freudian Theories and Religion.

SOCIOLOGY: 101, Introduction to Sociology; 101W, Introduction to Sociology; 102, Contemporary Social Issues; 102W, Contemporary Social Issues; 201, Sociological Perspectives; 205, Poverty, Health, and Politics; 220, Population and Society; 221, Environmental Inequality and Justice; 237, Society and Medicine; 257, Gender, Sexuality, and the Body; 264, Social Dynamics of Mental Health; 268, Race, Gender, and Health; 294, Seminars in Selected Topics (as appropriate). *Note:* Topics vary; the director of the MHS program will approve versions with sufficient MHS content for credit toward the major or minor.

SPANISH: 211, Spanish for the Medical Profession; 274, Literature and Medicine.

WOMEN'S AND GENDER STUDIES: 212, Lesbian, Gay, Bisexual, and Transgender Studies; 240, Introduction to Women's Health; 267, Seminar on Gender and Violence; 268, Gender, Race, Justice, and the Environment.

Other appropriate classes, including First-Year Writing Seminars, seminars for the College Scholars program, and special topics courses, may be approved at the discretion of the program director or assistant director.

Honors Program

The Honors Program in Medicine, Health, and Society offers superior students a more intensive concentration within their major field. The program requires:

1. A 3.3 cumulative grade point average.
2. A 3.3 cumulative grade point average in Medicine, Health, and Society.
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.
4. 6 hours in the fall and spring semesters of the senior year in MHS 297/298.
5. An honors thesis to be submitted no later than two weeks before the end of classes in the spring of the senior year.
6. Successful completion of an oral examination focusing on the topic of the thesis.

Minor in Medicine, Health, and Society

The interdisciplinary minor consists of a minimum of 18 hours of course work, distributed as follows:

Note: No more than 9 credit hours may be in courses designated MHS. 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 two of the ten options in the core courses of the major (6 hours).

2. Electives — Four additional courses, chosen from the above list of other approved courses except for those listed under "Basic Biomedical Sciences Option." (12 hours)

Course descriptions begin on page 204.

Nanoscience and Nanotechnology

DIRECTORS Paul E. Laibinis, Sandra J. Rosenthal

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 in collaboration with the College of Arts and Science.

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.

Details of the minor requirements are provided in the School of Engineering section of the catalog.

Neuroscience

DIRECTOR Terry L. Page
DIRECTOR OF HONORS AND INDEPENDENT STUDIES Terry L. Page

Steering Committee
PROFESSORS Vivien A. Casagrande (Medicine), Douglas G. McMahon (Biological Sciences), Terry L. Page (Biological Sciences)
ASSISTANT PROFESSOR Alexander Maier (Psychology)
SENIOR LECTURER Leslie M. Smith (Psychology)

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.

The program is directed by Professor of Biological Sciences Terry L. Page. For additional information, see *as.vanderbilt.edu/neuroscience.*

Program of Concentration

Students majoring in neuroscience are required to complete a core of introductory courses in mathematics, chemistry, physics, and biology that provide the broad scientific background necessary to the study of neuroscience. The neuroscience major consists of 39 hours of course work that includes 8 hours of organic chemistry and 31 hours of neuroscience and related courses distributed among specific disciplines associated with the study of neuroscience. The areas and associated course options are listed below. Excluding research credit (292a, 292b, 293a, 293b, and 296), the neuroscience and related courses must be drawn from at least two departments.

Students seeking a second major within the College of Arts and Science may count a maximum of 6 hours of 200-level course work to meet the requirements of both majors.

Required Math and Science Courses

Biological Sciences
BSCI 110a, 110b, 111a, and either 111b or 111c.

Chemistry
CHEM 220a or 218a; CHEM 220b or 218b; and CHEM 219a and 219b.

Mathematics
Option 1: MATH 150a or 155a and MATH 150b or 155b.
Option 2: MATH 140 and either BSCI 270 or PSY 209 or PSY-PC 2101.

Physics
Option 1: PHYS 113a, 113b, 114a, and 114b.
Option 2: PHYS 116a, 116b, 118a, and 118b.
Option 3: PHYS 121a and 121b.

Neuroscience and Related Courses

Introduction to Neuroscience (required)
Neuroscience 201.

Cellular and Molecular Neuroscience (6 hours required)
Biological Sciences 252, 256; Neuroscience 235, 260, 269.

Systems, Integrative, and Cognitive Neuroscience (6 hours required)
Biological Sciences 230, 254; Neuroscience 255, 272, 274, 299; Psychology 214, 216, 232, 236, 238, 253, 277.

Neuroscience Laboratory (4 hours required)
Neuroscience 292a, 292b.

Neuroscience Electives (6 hours required)
Two additional courses from the Neuroscience courses listed above. One semester of Neuroscience 293a or 3 credit hours of Neuroscience 296 may be used to count for one elective course.

Related Course Electives (6 hours required)
Biological Sciences 201, 202, 210, 211, 220, 265, 270; Biomedical Engineering 251, 252; Chemistry 210, 224, 226, 231; Computer Science 101, 103; Mathematics 175, 196, 198; Philosophy 244, 256; Psychology 209, 211, 215, 225, 246, 247, 252, 258.

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 spring 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. The student should begin within the program the following semester. Entrance into and satisfactory completion of the Honors Program requires that students maintain an overall grade point average of 3.0 and a grade point average of 3.25 in courses counting toward the neuroscience major. Honors candidates must meet all the normal requirements for the neuroscience major, but students are expected to complete at least 8 hours of research course work (Neuroscience 292a, 292b, 293a, 293b, and 296). Three of these research hours may count toward neuroscience elective course work. The candidate must present an honors 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 and independent study. 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. The minor program consists of 15 hours of course work distributed as follows:

Neuroscience 201.
Biological Sciences 252 or 256.
At least 9 additional hours (3 courses) chosen from the courses listed as "Neuroscience Courses" in the Program of Concentration in Neuroscience, except that research courses (Neuroscience 190, 292a, 292b, 293a, 293b, and 296) do not count toward the minor.

As prerequisites, students are also required to complete two semesters of chemistry with a laboratory and Biological Sciences 110a–110b and 111a–111b/111c.

Course descriptions begin on page 206.

For courses that have NSC 201 as a prerequisite, PSY 201 also satisfies that prerequisite if it was completed prior to fall 2008.

Philosophy

CHAIR Robert Talisse
DIRECTOR OF UNDERGRADUATE STUDIES Michael P. Hodges
DIRECTOR OF GRADUATE STUDIES José Medina
PROFESSORS EMERITI John J. Compton, Clement Dore, Robert R. Ehman, John F. Post, Charles E. Scott, Donald W. Sherburne, Henry A. Teloh
PROFESSORS Marilyn A. Friedman, Lenn E. Goodman, Michael P. Hodges, John Lachs, Larry May, José Medina, Kelly Oliver, Lucius T. Outlaw Jr., Robert Talisse, David Wood
ASSOCIATE PROFESSORS Idit Dobbs-Weinstein, Lisa Guenther, Jeffrey Tlumak, Julian Wuerth
ASSISTANT PROFESSOR Scott Aikin
SENIOR LECTURERS Kevin Davis, Jennifer Holt, Gary Jaeger, Russell McIntire, Martin Rapisarda
LECTURERS Christopher Davies, Alison Suen

THE Department of Philosophy at Vanderbilt offers a wide range of courses relating philosophy to various dimensions of human concern. The department also emphasizes those philosophers and movements that have had significant, forming effect in Western culture.

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: 102 or 202 (at least 3 hours); Ethics: 105, 238, 239, or 239W (at least 3 hours); History of Philosophy: 210, 211, or 212 (at least six 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 hours in the major field of which at least 21 hours must be in courses beyond the 100 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 3.0 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 hours of Philosophy 295. Students who successfully complete the program while maintaining the grade point averages of 3.0 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 hours, including at least 12 hours in courses beyond the 100 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.

Starred course 100 or 100W or 105 or 115F is ordinarily taken prior to all other philosophy courses, except 102 and 202 (logic courses), 244 (philosophy of science), and 240 (aesthetics).

Course descriptions begin on page 207.

Physics and Astronomy

CHAIR Robert J. Scherrer
DIRECTOR OF UNDERGRADUATE STUDIES David A. Weintraub
DIRECTOR OF GRADUATE STUDIES Julia Velkovska
PROFESSORS EMERITI Royal G. Albridge, John Paul Barach, Charles A. Brau, Leonard C. Feldman, Douglas S. Hall, Arnold M. Heiser, E. A. Jones, P. Galen Lenhert, C. E. Roos, Medford S. Webster
PROFESSORS Frank E. Carroll Jr., Walter J. Chazin, Charles W. Coffey, Louis DeFelice, David J. Ernst, Daniel M. Fleetwood, John C. Gore, Senta V. Greene, Richard F. Haglund Jr., Dennis G. Hall, Joseph H. Hamilton, Thomas W. Kephart, Charles F. Maguire, Volker E. Oberacker, Sokrates T. Pantelides, James Patton, David W. Piston, Ronald R. Price, Akunuri V. Ramayya, Sandra J. Rosenthal, Robert J. Scherrer, Paul D. Sheldon, Keivan G. Stassun, Norman H. Tolk, A. Sait Umar, Julia Velkovska, Thomas J. Weiler, David A. Weintraub, Robert A. Weller, John P. Wikswo Jr.
DISTINGUISHED RESEARCH PROFESSOR C. Robert O'Dell
ADJUNCT PROFESSOR Donald A. Gunter
ADJOINT PROFESSORS Antonio Cricenti, Michael V. Glazov
ASSOCIATE PROFESSORS Steven E. Csorna, James Dickerson, M. Shane Hutson, Will E. Johns, Hassane Mchaourab, Kalman Varga
ASSISTANT PROFESSORS Andreas Berlind, Kirill Bolotin, Dennis Duggan, Daniel F. Gochberg, Kelly Holley-Bockelmann, Erin Rericha, Yaqiong Xu
SENIOR LECTURER Forrest Charnock

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 a 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 32 or 33 hours, depending on the student's choice for requirement 1.

1. The second semester (Physics 113b and 114b or 116b and 118b or 121b) in introductory, calculus-based physics;
2. A 19-hour core sequence, which consists of five courses covering the major subdisciplines of physics at an intermediate level and one semester each of the astronomy and physics seminars (Astronomy 250, Physics 250); and
3. 9 hours of electives in physics or astronomy, with at most 6 of these 9 hours earned from any combination of directed study (289a–289b), independent study (291a–291b), and/or Honors research (296a–296b).

The core intermediate-level courses are: Concepts and Applications of Quantum Physics (Physics 225 or 225W); Modern Physics (Physics 226 or 226W); Thermal and Statistical Physics (Physics 223 or 223c); Classical Mechanics I (Physics 227a); and Electricity, Magnetism, and Electrodynamics I (Physics 229a). Exceptionally well-qualified students should discuss their first-year program with the director of undergraduate studies for appropriate advising.

The electives required by the major may be satisfied by any combination of courses offered by the department that are at the 200 level or above, with the exception of the seminar courses Physics 250 and Astronomy 250 (one hour of each is already required for the major). Other courses may count as an elective, such as courses offered by the engineering school (or other departments and schools) that are particularly relevant,

such as a course in health physics, optics, or materials science. Such exceptions must be approved by the department's Undergraduate Program Committee. Other courses, such as 100-level courses in the physics department or additional hours of the Physics or Astronomy seminar (250) will be considered with sufficient justification. The purpose of the above policy is to allow relevant courses to count without having to specify them in advance, since it is expected that the relevant courses offered by other departments and schools will change and it is not practical to attempt to maintain a list of approved electives. Majors should seek approval of an elective from their adviser prior to their taking the course and, if applicable, from the department's Undergraduate Program Committee.

Students with specific educational or professional objectives in the sciences or engineering may wish to augment the major by taking additional courses to prepare for graduate study or employment in physics, astronomy and astrophysics, applied physics, or medical physics. Students are encouraged to consult with the director of undergraduate studies to learn about study abroad options.

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 the catalog.

Honors Program

A student majoring in the Department of Physics and Astronomy may apply for admission to an honors program that allows the student to engage in independent study under the guidance of a faculty member, usually in an area related to an ongoing research program in the department. Admission to the Honors Program is granted only to students who have attained a departmental GPA and overall GPA of at least 3.000. The requirements for graduation with honors in physics or in astronomy are: at least a *B* average both in the department and overall; at least 10 credit hours in Physics 291, Physics 296, Astronomy 291, Astronomy 296, and up to 3 hours (counted toward the 10) in a course numbered from 254 to 285; a senior thesis of high merit; and high attainment on an oral honors examination given near the end of the senior year.

Departmental Minors

The physics or astronomy minor is suitable for students who wish to supplement a related discipline or simply have a general interest in the field. Note that the Independent and Directed Study portion of the physics minor is not a requirement but may count toward the minor under certain circumstances. Seek departmental approval before enrolling in either of these classes.

Minor in Physics

The minor requires a minimum of 19 credit hours of course work, distributed as follows:

Any first-semester calculus-based physics class with lab (113a and 114a, 116a and 118a, or 121a)	4–5
Any second-semester calculus-based physics class with lab (113b and 114b, 116b and 118b, or 121b)	4–5
Physics 225, 225W, 226, or 226W	4
Two 200-level and/or 300-level physics courses, one of which may be a 3 credit hour one semester directed study course (289) or a 3 credit hour one semester independent study course (291)	6
Physics 250	1
Total hours:	19–21

Minor in Astronomy

Astronomy 102 and 103, or 205 and 103	4
Four other astronomy courses, one of which may be a 3-hour directed study (ASTR 289)	12
Two semesters of ASTR 250	2
Total hours:	18

Physics

Course descriptions begin on page 209.

Introductory Courses

099, 110, 111, 113a, 113b, 114a, 114b, 115F, 116a, 116b, 118a, 118b, 121a, 121b

Introductory, calculus-based physics is offered at several different levels, each with the appropriate laboratory. Only one of 113a/116a/121a and one of 113b/116b/121b may be taken for credit. Students in 113a–113b must concurrently enroll in the appropriate laboratory class, 114a–114b. Students in 116a–116b must concurrently enroll in the appropriate laboratory class, 118a–118b. Courses in these sequences can be interchanged if scheduling conflicts occur. Physics 113a–113b/114a–114b is intended for students in the health sciences. Physics 116a–116b/118a–118b is intended for students in engineering. Physics 121a–121b is intended for students planning to major in physics or pursue research-oriented careers in science, engineering, or mathematics. Prospective majors should begin their study of physics in the fall semester of their freshman year, although with careful planning it is possible to complete the physics major with a later start. Physics 110 is intended for students without strong backgrounds in mathematics or science who have a general interest in the subject. 110 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

221, 223, 223c, 225, 225W, 226, 226W, 227a, 228, 229a, 250, 257, 266

The intermediate-level courses cover the major subdisciplines of classical and modern physics.

Advanced Courses

227b, 229b, 240, 251a, 251b, 254, 255, 289, 291, 296

These courses are intended for physics or physics–astronomy majors in their junior and senior year and provide material supporting independent study or honors projects in physics.

Medical and Health Physics Courses

228, 243, 285

Astronomy

Course descriptions begin on page 171.

Introductory Courses

099, 102, 103, 115F, 122, 201, 203

Intermediate Courses

205, 250, 252, 253, 254, 260, 289, 291, 296

Political Science

CHAIR John G. Geer
ASSOCIATE CHAIR Cindy D. Kam
DIRECTOR OF UNDERGRADUATE STUDIES Carrie A. Russell
DIRECTOR OF GRADUATE STUDIES Cindy D. Kam
PROFESSORS EMERITI Robert H. Birkby, Erwin C. Hargrove, M. Donald Hancock, William C. Havard Jr., Richard A. Pride, Harry Howe Ransom, James Lee Ray, Benjamin Walter
VISITING DISTINGUISHED PROFESSOR Jon Meacham
PROFESSORS Larry M. Bartels, William James Booth, John G. Geer, Marc J. Hetherington, Cindy D. Kam, David E. Lewis, Bruce I. Oppenheimer, Mitchell A. Seligson, Carol M. Swain
ADJUNCT PROFESSOR Roy Neel
ASSOCIATE PROFESSORS Brooke A. Ackerly, Brett Benson, Giacomo Chiozza, Joshua Clinton, Jonathan T. Hiskey, Alan Wiseman, Elizabeth J. Zechmeister
ASSISTANT PROFESSORS Katherine B. Carroll, Suzanne Globetti, Monique L. Lyle, Kristin Michelitch, Cecilia Mo, Emily Nacol, Efrén O. Pérez, Zeynep Somer-Topcu
SENIOR LECTURERS Klint J. Alexander, Carrie A. Russell

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 hours of work, distributed as follows:

Political Science 100, 101, 102, 103, or 150	6
Political Theory (202, 203, 205, 207, 207W, 208, 209, 253, 257, 258, 263, 264W, 270, 271, 286)	3
Comparative Politics (210, 211, 213, 215, 216, 217, 219, 223, 228, 230, 235, 236, 238, 270, 272W, 284)	3
International Politics (211, 221, 222, 223, 225, 226, 228, 229, 236, 270, 272W, 273, 275, 277, 285)	3
American Government and Politics (240, 241, 243, 244, 245, 247, 249, 250, 251, 252, 253, 254, 255, 256, 259, 260, 262, 265, 266, 267, 268, 270, 283)	3
Electives (Any 200-level course listed above; 287; one additional 100-level course, including 115F; up to 6 hours of 280b, 280c, 289a, 289b, 291a, 291b, 299a, 299b combined)	12
Minimum hours:	30

In order to graduate with a political science major, students must take a brief exam within the subfield in which they are most interested during their senior year. Students are to take this exam in the fall of their senior year (students who are on leave or are studying abroad during the fall semester of their senior year should schedule the exam upon their return to campus). 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.

In meeting the above requirements, students must develop a specialty within one of the four subfields of Political Theory, Comparative Politics, International Politics, or American Government by taking the introductory, 100-level course in that subfield, and at least three 200-level courses in that subfield. It is recommended that one of those 200-level courses in the subfield selected by each major should be a seminar.

In meeting the above requirements, students desiring African American emphasis in a program of concentration should consider courses in the following group: 240, 255, 265, 266. They may also choose to elect the following courses at Fisk University: Political Science 406 (African Political Systems), 245 (Afro-American Political Thought), and 254 (Politics in the Black Community).

Graduate Courses. Qualified undergraduates may enroll in graduate courses with the consent of their adviser, the course instructor, and the Graduate School. Undergraduate applicants to enroll in graduate courses need to comply with rules provided under the heading Undergraduate Enrollment in Graduate Courses in this catalog on p. 93.

Honors Program

To enter the program, students should have completed all but 6 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 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 (299a and 299b), during the semester(s) when they work on the honors thesis (at least 3 hours each).
4. An oral exam on the honors thesis in the last semester of the senior year.

Students in the Honors Program are encouraged to take PSCI 270 before they enter or during their first semester in the Honors Program.

A three-member Honors Committee will be appointed to administer each student's program. Students should submit the names of a faculty adviser and the other two members of the committee to the director of the Honors Program as soon as possible after they are accepted into the Honors Program. The committee will administer the oral examination, after which it will also decide 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 minors, which are detailed below. Each consists of 18 hours (one introductory-level course and five upper-level courses). One of these options may be chosen:

Political Theory

103	3
Any five of the following: 202, 203, 205, 207, 207W, 208, 209, 253, 257, 258, 263, 264W, 271, 286	15

World Politics

A student may stress comparative politics or international politics or may mix the two in this minor.

101 or 102	3
Any five of the following:	
Comparative Politics: 210, 211, 213, 215, 216, 217, 219, 223, 228, 230, 235, 236, 238, 272W, 284, Fisk Political Science 406	
International Politics: 211, 221, 222, 223, 225, 226, 228, 229, 236, 272W, 273, 275, 277, 285	15

American Politics

100 or 150	3
Any five of the following: 222, 240, 241, 243, 244, 245, 247, 249, 250, 251, 252, 253, 254, 255, 259, 260, 262, 265, 266, 267, 268, 283	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.

Course descriptions begin on page 210.

Psychology

CHAIR Andrew J. Tomarken
DIRECTOR OF UNDERGRADUATE STUDIES Jo-Anne Bachorowski
DIRECTOR OF GRADUATE STUDIES René Marois
DIRECTOR OF CLINICAL TRAINING Bunmi O. Olatunji
PROFESSORS EMERITI William F. Caul, Keith N. Clayton, Ford F. Ebner, Robert Fox, Jeffery J. Franks, Martin Katahn, Joseph S. Lappin, Richard D. Odom, Leslie Phillips, William P. Smith, Warren W. Webb
PROFESSORS Randolph Blake, Vivien A. Casagrande, Isabel Gauthier, Steven D. Hollon, Jon H. Kaas, Gordon D. Logan, Timothy P. McNamara, René Marois, Sohee Park, Anna Roe, Jeffrey D. Schall, Frank Tong, David Zald
ASSOCIATE PROFESSORS Jo-Anne Bachorowski, Bunmi O. Olatunji, Thomas J. Palmeri, David G. Schlundt, Andrew J. Tomarken
ASSISTANT PROFESSORS Denise Davis, Alexander Maier, Sean Polyn, Adriane Seiffert, Geoffrey Woodman
RESEARCH ASSISTANT PROFESSORS Leslie D. Kirby, Hui-xin Qi, Iwona Stepniewska
SENIOR LECTURERS Leslie D. Kirby, Elisabeth H. Sandberg, Leslie M. Smith
LECTURER Bieke Puncochar

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 includes the study of processes such as learning, remembering, perceiving environmental 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 about the environment, 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 encouraged as a basic aspect of education in psychology.

Programs of Concentration in Psychology

General Program
PSY 101
PSY 208
PSY 209 or PSY 2101 (Peabody)
4 Distribution Courses*
5 Psychology Electives**
Total hours: 36

Honors Program
PSY 101
PSY 208
PSY 209 or PSY 2101 (Peabody)
4 Distribution Courses*
PSY 295a and/or 295b and both PSY 296a and 296b

3 Psychology Electives
Students who only take one semester of PSY 295 will need to take an additional elective course to fulfill their 42 hours.
Total hours: 42

Honors Program. The Honors Program is a two-year program that 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 two years of honors research, and participation in the Honors Seminars, PSY 295a and/or 295b and both PSY 296a and 296b (at least 9 credit hours total). Under special circumstances (e.g., a semester abroad or student teaching), students may enroll in only three semesters of the Honors Seminars—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 only take one semester of PSY 295 will need to take an additional elective course to fulfill their 42 hours.

Students who are majoring in psychology apply to the Honors Program at the end of their sophomore year if they have at least a grade point average of 3.2, both overall and in psychology courses. Students must also find a faculty mentor who is willing to sponsor them in the program. Students who complete the program successfully and have a final grade point average of 3.2 or higher will receive honors or highest honors in psychology.

** Distribution Courses*
(at least 4 of the following 5 courses are required)
The following courses provide a grounding in core content areas of experimental psychology.

PSY 215, 225, 231; NSC 201; PSY 1630 (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.

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 in the fall of their senior year (students who are on leave or are studying abroad during the fall semester of their senior year should schedule to take the exam upon their return to campus). 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 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 hours of course work inside the department, distributed as follows:

Psychology 101	3
Psychology 208 and either 209 or PSY 2101 (Peabody)	6
Two courses from the list of Distribution Courses specified for the major	6
One psychology elective as defined in the psychology major	3
Total hours:	18

Independent/Directed Study courses (293/2970 and 290/2980) may not be counted as the elective course for minors.

101 (or 115F, sections 1, 2, and 3) is prerequisite for all other psychology courses except 115F. PSY 115F – 01, 02, 03 – General Psychology, First-Year Writing Seminar – covers the same material as PSY 101 and also serves as the introductory prerequisite for all 200-level courses in psychology. Credit cannot be earned for both PSY 101 and PSY 115F – 01, 02, or 03. PSY 115F – sections 4 and higher – is a First-Year Writing Seminar on special topics in psychology. PSY 115F – section 4 and higher – does not replace PSY 101 as a prerequisite for all 200-level courses in psychology and may be taken in conjunction with PSY 101.

Note: NSC courses 201 (Neuroscience), 235 (Biological Basis of Mental Disorders), 269 (Developmental Neuroscience), 272 (Structure and Function of the Cerebral Cortex), and 274 (Neuroanatomy) count as courses in the Department of Psychology (A&S). See the Neuroscience course listings for descriptions of these classes.

Course descriptions begin on page 214.

Public Policy Studies

DIRECTOR Katherine Carroll (Political Science)
ADVISORY BOARD Kathryn Anderson (Economics), Jay Clayton (English), Kevin Davis (Philosophy), David Lewis (Political Science)

Affiliated Faculty
SENIOR LECTURER Carrie A. Russell (Political Science)

STUDENTS may choose an interdisciplinary program of concentration in public policy studies. The major requires students to take courses in government, ethics, and social science. In addition, students develop analytical skills through course work in research methodology, statistics, and economics. Each student also chooses a policy track, an area of public policy they want to explore in depth.

Program of Concentration in Public Policy Studies

The interdisciplinary major requires 39 hours of course work divided into two parts: 24 hours of required core courses and 12 hours of elective courses focusing on one substantive policy area. A student contemplating a major in public policy studies must take the following prerequisites: PSCI 100, 101, 102, or 150; ECON 100 and 101. Individual courses included in the program may specify additional prerequisites. If one of the required courses is not offered, students may substitute with the permission of their major adviser.

I. Core Courses (24 hours)

1. *General (3 hours):* HOD 1800, Public Policy; PSCI 255, Introduction to Public Policy.
2. *Research Methods (3 hours):* HOD 1700, Systematic Inquiry; PSCI 270, Conducting Political Research; or SOC 211, Introduction to Social Research.
3. *Statistics (3 hours):* ECON 150, Economic Statistics; ECON 155, Intensive Economic Statistics; SOC 127, Statistics for Social Scientists; or both MATH 218, Introduction to Probability and Mathematical Statistics, and Math 218L, Statistics Laboratory; or PSY 2101, Introduction to Statistical Analysis.
4. *Ethics (3 hours):* PSCI 208, Law, Politics, and Justice; PSCI 253, Ethics and Public Policy; PHIL 239, 239W, Moral Problems*; PHIL 270, Ethics and Medicine*; PHIL 271, Ethics and Business*; or PHIL 272, 272W, Ethics and Law*. (Courses in ethics with an asterisk have the prerequisite of PHIL 105.)
5. *Public Finance (3 hours):* HOD 2820, Public Finance; or ECON 254, Public Finance (prerequisite ECON 231).
6. *Government (3 hours):* any 200-level Political Science course excluding 253 and 270.
7. *Economics (3 hours):* any Economics (ECON) 200-level course except 254.
8. *Society and Culture (3 hours):* any Sociology (SOC) course above 201, excluding 211 and 212; or any Anthropology (ANTH) course above 203, excluding language classes.

II. Policy Track (12 hours)

The track is intended to allow students to go more deeply into one area of public 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 200-level and should represent at least two disciplines.

The following are examples of how a policy track might be structured.

- *Crime and Justice:* ECON 285, Law and Economics; PSY 215, Abnormal Psychology; SOC 231, Criminology; and SOC 232, Delinquency and Juvenile Justice.
- *Labor Market Policy:* ECON 212, Labor Economics; PSCI 244, The Legislative Process; SOC 251, Women and Public Policy in America; and SOC 255, Racial and Ethnic Minorities in the United States.
- *Health Policy:* ECON 268, Economics of Health; HIST 280, Modern Medicine; PHIL 270, Ethics and Medicine; and SOC 237, Society and Medicine.

III. Capstone Seminar (3 hours)

PPS 295, Senior Seminar on Research in Public Policy, is required of all Public Policy majors and is taken during their last year.

Total: 39 hours

Course descriptions begin on page 215.

Religious Studies

CHAIR Tony K. Stewart
DIRECTOR OF UNDERGRADUATE STUDIES IN RELIGIOUS STUDIES Martina Urban
DIRECTOR OF UNDERGRADUATE STUDIES IN ISLAMIC STUDIES Richard McGregor
DIRECTOR OF GRADUATE STUDIES James Byrd (Divinity)
CHAIR, GRADUATE DEPARTMENT OF RELIGION Paul DeHart (Divinity)
PROFESSORS EMERITI Charles H. Hambrick, Gary Jensen, Daniel M. Patte
PROFESSORS Victor Anderson, Lewis V. Baldwin, Robert Campany, Larry Churchill, Volney P. Gay, Lenn E. Goodman, Amy-Jill Levine, Laurel Schneider, Tony K. Stewart
ASSOCIATE PROFESSORS Jay Geller, Elizabeth Heitman, Richard McGregor, Martina Urban
ASSISTANT PROFESSORS Annalisa Azzoni, Dianna Bell, Nancy G. Lin, Bryan Lowe, Anand Taneja
SENIOR LECTURER Bushra Hamad

THE Department of Religious Studies offers courses that explore religion in cultures around the world and courses that train students in the intellectual skills relevant to such inquiry. Religion is the actions and thoughts people have toward that which they consider sacred, spiritual, or divine. Religion has inspired the rise of entire civilizations lasting thousands of years and the innermost experience of individuals in solitude. Religious studies courses reflect this vast scope: they range from lecture courses that compare great world traditions, such as Christianity and Buddhism, to seminars that focus upon a single religious text, or upon a religious form, such as myth and ritual, or upon a method of inquiry such as textual criticism and other methods of interpretation.

Students majoring in religious studies have a dual focus: they study religious traditions and they acquire research methodologies such as textual criticism, history, and the social scientific study of religion. Many students complete double majors, combining religious studies with history, anthropology, sociology, philosophy, or art. Many study abroad in Asia, the Middle East, or Europe and use their research in their senior projects. Religious studies trains students to investigate world cultures and, by comparing cultures, understand theirs in depth. The multicultural and interdisciplinary character of religious studies makes it an excellent foundation to a liberal arts education.

Program of Concentration in Religious Studies

The 30-hour major in religious studies is designed with two goals in mind. We want our students to become literate in at least two prominent world religious traditions. We also ask students to take courses that will familiarize them with the range of ways in which religion is studied and understood. A major in religious studies lays a solid foundation on which to build either a career in professions that demand contact with diverse populations, such as international business, medicine, social work, law, and education or graduate and seminary studies.

Students majoring in religious studies must complete at least 30 hours distributed as follows. The first-year seminar (115F) may be counted toward the major in either Category 1 or Category 2, according to its topic. Students planning to pursue graduate studies are especially encouraged to take language courses.

Category 1. Religious Traditions in Cultural Contexts. Students complete a minimum of 15 hours, including at least two courses in each of two religious traditions from the following:

a. *Christianity:* 109, 111W, 204W, 206, *210, 212, *213, Classical Studies 241, History 176, 225, either Greek 202 or Latin 102 (or equivalent).
b. *Judaism:* 108, 112, 203, *220W, 222, *225, 229, Hebrew 111b, Jewish Studies (JS) courses, *Philosophy 211.
c. *Islam:* 113, *251, 252, 254, 262, *292, *293, Arabic 210b, History 116, 119, 219, Philosophy 262.
d. *Buddhism and Other Asian Religious Traditions:* 130, 135, 136, 137, 200, 243, 244, 247, 249, 250, 253, 264, 265, 266, 269, 270, 275, *Japanese 212.
e. *African American Religious Traditions:* 107, 110W, *204W, 219, 242.
f. *Native American Religious Traditions:* 278, Anthropology 250.

* These and similar courses may count toward other areas of the religious studies major (see adviser regarding starred courses and courses not listed above). However, no course may be used to satisfy more than one requirement in the religious studies major.

Category 2. Religion and Its Role in Human Life. Students complete a minimum of 9 hours, including at least one course from each group.

a. 123, 181, *206, 234, Jewish Studies 244.
b. *Ways in Which Religion Shapes the Thoughts, Lives, and Values of Practitioners:* 101, *140, 202, 213, 221, 223, 226, 230, 238, 239, 240, 242, 243, 246, 251, 292, 293, Anthropology 226, Astronomy 203, Classical Studies 146 and 224, History 217, 288a, 288b, Italian 231, Jewish Studies 155, Music Literature 219, Philosophy 242 and 245, Political Science 263, Sociology 246.

* These and similar courses may count toward other areas of the religious studies major (see adviser regarding starred courses and courses not listed above). However, no course may be used to satisfy more than one requirement in the religious studies major.

Category 3. Senior Requirements. A senior seminar (280W, 3 hours) gathering majors during the fall semester of their last year.

Honors Program

The Honors Program in Religious Studies is designed to afford superior students the opportunity to pursue more intensive work within their major field. The program requires: (a) a 3.0 cumulative grade point average; (b) 6 hours of independent research, 299a–299b (Honors Research) normally taken during the senior year; (c) an honors thesis to be completed by the spring of the senior year; (d) successful completion of an honors oral examination on the topic of the thesis.

Minor in Islamic Studies

20 hours. Students complete a required minimum of 20 hours from the list below, which must include Arabic 210b, Elementary Arabic; Religious Studies 113, Introduction to Islam; and Religious Studies 254, The Qur'an and Its Interpreters. The maximum number of hours to be counted toward the minor from Arabic language courses is 9. No hours will be counted for Arabic 210a.

ARABIC: 210b, Elementary Arabic; 220a–220b, Intermediate Arabic; 230a–230b, Advanced Arabic; 240, Media Arabic; 250, Arabic of the Qur'an and Other Classical Texts.

CLASSICS: 224, The Ancient Origins of Religious Conflict in the Middle East.

HISTORY: 115F, First-Year Writing Seminar (when related to Islamic history or culture as determined by the director of undergraduate studies); 116, Modern South Asia; 119, A History of Islam; 120, The Arab Spring; 127, Sub-Saharan Africa: 1400–1800; 128, Africa since 1800: The Revolutionary Years; 211a, The Mughal World; 212a, India and the Indian Ocean; 213, Muhammad and Early Islam; 217, Islam and the Crusades; 219, Last Empire of Islam; 287c, Cities of Europe and the Middle East; 288c, Muslims, Christians, and Jews in Medieval Spain.

JEWISH STUDIES: 120, Islam and the Jews; 256, Power and Diplomacy in the Modern Middle East.

PHILOSOPHY: 211, Medieval Philosophy; 262, Islamic Philosophy.

POLITICAL SCIENCE: 230, Middle East Politics; 287, Selected Topics (when related to Islamic politics or culture as determined by the director of undergraduate studies).

RELIGIOUS STUDIES: 113, Introduction to Islam; 115F, First-Year Writing Seminar (when related to Islamic religion or culture as determined by the director of undergraduate studies); 251, Islamic Mysticism; 252, Reformers of the Islamic Tradition; 254, The Qur'an and Its Interpreters; 262, Culture, Religion, and Politics of the Arab World; 292, Advanced Seminar in Arabic; 293, Advanced Seminar in Islamic Tradition.

Minor in Religious Studies

18 hours. Students complete a minimum of 12 hours in Category 1 (see above—6 hours in each of two religious traditions). Students complete a minimum of 6 hours in Category 2 (see above—3 hours from each group). The First-Year Writing Seminar (115F) may be counted toward the minor in either Category 1 or Category 2, according to its topic. Students may elect to participate in the Senior Seminar (280W) to be counted in Category 2.

Course descriptions begin on page 215.

Scientific Computing

DIRECTORS Bobby Bodenheimer (Computer Science), Thomas Palmeri (Psychology), David Weintraub (Physics and Astronomy)

THE College of Arts and Science and the School of Engineering 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.

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 pursuing the scientific computing minor 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.

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.

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 Katharine M. Donato
DIRECTOR OF UNDERGRADUATE STUDIES David J. Hess
DIRECTOR OF GRADUATE STUDIES Richard Pitt
PROFESSORS EMERITI Ernest Q. Campbell, Jack P. Gibbs, Walter R. Gove, Gary F. Jensen, Ronnie Steinberg
PROFESSORS Daniel B. Cornfield, Katharine M. Donato, David J. Hess, Larry W. Isaac, Holly J. McCammon, Jonathan M. Metzl, R. Jay Turner
ASSOCIATE PROFESSORS George Becker, Tony N. Brown, Karen E. Campbell, Laura M. Carpenter, André Christie-Mizell, Shaul Kelner, Richard Lloyd, Richard Pitt, Mariano Sana, Steven J. Tepper
ASSISTANT PROFESSORS Tyson Brown, Joshua Murray, Evelyn Patterson, Lijun Song, LaTonya Trotter
SENIOR LECTURERS Joe Bandy, Rosevelt Noble

SOCIOLOGY, the study of social consensus, conflict, and change, offers students a better understanding of society and the meaning of social interaction. The department's courses cover a wide range of sociological themes including arts, culture, religion; cities, states, and political economy; deviant behavior and social control; 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 further their preparation for a career in law, medicine, business, the ministry, nursing, social work, civil service, or teaching.

Program of Concentration in Sociology

Students majoring in sociology are required to complete 33 credit hours of work in sociology. The major consists of five types of courses: introduction to sociology; a course in theory; courses that emphasize research skills; courses that familiarize students with core areas of the field; and electives. The statistics course must be taken prior to Sociology 212.

Course work for the major is distributed as follows:

Introduction: Sociology 101, 101W, or 102W 3

Theory: Sociology 201 3

Research Skills: (3 courses)

Sociology 127 or Economics 150 or 155 or Math 127b or 218 (or PSY 209 or PSY 2101 (Peabody) for those students who double major in sociology and psychology or in sociology and the Peabody majors in human and organizational development, child development, cognitive studies, or child studies) 3

followed by or concurrent with
Sociology 211 (or HOD 1700 for students who double major in sociology and HOD) 3

followed by
Sociology 212 (or two semesters of Sociology 296 (Honors Research); or at least three credit hours of Independent Research 299 and the approval of the chair or director of undergraduate studies) 3–6

Core Areas: (3 courses)

Students must take at least one course in three of the four core areas listed below 9

Culture, Institutions, and Socialization
Sociology 214, 218, 219, 227, 228, 229, 230, 246, 248, 254, 277, 279

Health, Environment, Population, and Migration
Sociology 205, 206, 220, 221, 237, 264, 268, 270, 274; Environmental Studies 278; Medicine, Health, and Society 231, 240

Politics, Law, and Conflict
Sociology 204, 216, 224, 225, 231, 232, 233, 234, 235, 236, 240, 244, 247, 249, 251; Jewish Studies 252

Race, Ethnicity, and Gender
Sociology 204, 239, 247, 250, 251, 253, 255, 256, 257, 272; Jewish Studies 155, 158

Electives: (3 courses) 9

Any 3 sociology courses not used to satisfy the above requirements. They may include only one of the following 100-level sociology courses: Sociology 104, 104W, or 115F. No other 100-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 three elective sociology courses in a cluster of advanced concentration electives to be selected with the student's adviser. See the director of undergraduate studies or the departmental website for suggested clusters: *vanderbilt.edu/sociology/VDOS_Undergraduate.shtml*

Total credit hours: 33–36

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.

Honors Program

The Honors Program offers superior majors in sociology the opportunity to pursue intensive work through an independent research project. Students interested in pursuing the Honors Program in Sociology should contact the director of undergraduate studies for more information. To be considered for the Honors Program 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 meet the College of Arts and Science requirements and are recommended for the program by the director of undergraduate studies will typically begin the program in the fall of their junior or senior year. Students who complete the honors sequence take a minimum of 36 credit hours to complete the requirements for the major in sociology. The first semester of 296 (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 296 (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 296 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 296, up to a maximum of 12 credit hours.

The Honors Program in Sociology requires:

1. Successful completion of at least two semesters of 296 (Honors Research).
2. 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.

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 hours of course work inside the department, distributed as follows:

1. Sociology 101, 101W, or 102, 102W	3
2. Sociology 201	3
3. Four courses, including at least one from three of the four core areas listed above in the major	12
Total 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.

Course descriptions begin on page 219.

Spanish and Portuguese

CHAIR Cathy L. Jrade
VICE CHAIR Victoria A. Burrus
DIRECTOR OF UNDERGRADUATE STUDIES María Paz Pintané
DIRECTOR OF GRADUATE STUDIES Christina Karageorgou-Bastea
PROFESSORS EMERITI J. Richard Andrews, M. Frăncille Bergquist, John Crispin, Russell G. Hamilton, C. Enrique Pupo-Walker, Francisco Ruiz-Ramón
PROFESSORS Susan Berk-Seligson, Earl E. Fitz, Edward H. Friedman, Ruth Hill, Cathy L. Jrade, William Luis, Philip D. Rasico, Benigno Trigo
ASSOCIATE PROFESSORS Victoria A. Burrus, Christina Karageorgou-Bastea, Emanuelle Oliveira-Monte, Andrés Zamora
ASSISTANT PROFESSORS Márcio Bahia, José Cárdenas Bunsen, N. Michelle Shepherd
SENIOR LECTURERS Frances Alpren, José Luis Aznar, Lorraine Catanzaro, Rachel R. Chiguluri, Sarah Delassus, Heraldo Falconi, Victoria Gardner, Chalene Helmuth, Clint Hendrix, Alicia Lorenzo-García, Patrick Murphy, Elena Olazagasti-Segovia, Amarilis Ortiz, Carolina Palacios, María Paz Pintané, Raquel Rincón, Cynthia M. Wasick

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. Interdisciplinary majors are available in Spanish and European Studies or in Spanish, Portuguese, 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 the master of arts in both Spanish and Portuguese, a doctoral program in Spanish, and a combination doctoral degree in Spanish/Portuguese.

Many students participate in the Vanderbilt in Spain program in Madrid or in Vanderbilt programs in Barcelona, Palma de Mallorca, Argentina, Chile, the Dominican Republic, and Brazil. Activities organized by the department include lectures, films, and symposia. The department has a chapter of the national honor society Sigma Delta Pi for students of Spanish. Students are encouraged to apply for living space in the Spanish Hall of McTyeire International House.

Program of Concentration in Spanish

The major consists of 30 credit hours in Spanish courses numbered above 200. The distribution requirements are as follows:

1. *Core requirements:* 201W, 202, and 203.
2. *Literature:* Nine hours from courses numbered 230–281 or 294.
3. *Linguistics:* Three hours from courses numbered 212–220, 282–285, or 295.
4. *Electives:* Nine hours from courses numbered 204–285 or 294–296. Students may substitute 3 hours of a language course in either Portuguese (102 or higher) or Catalan (102 or higher).

A more advanced composition course may be substituted for 201W. A more advanced conversation course may be substituted for 202. Spanish 203 is the prerequisite for all literature courses offered by the department. Students must take Spanish 201W, 202, and 203 in order to participate in most study-abroad programs. Seniors are eligible to take one or two graduate-level courses (300 and above) with the approval of the instructor and the chair of the department.

Honors Program in Spanish

Candidates for honors in Spanish who meet college and departmental requirements must complete 36 hours in Spanish courses numbered above 200. Students satisfy the requirements of the 30-hour major in Spanish, in which one of the required literature courses is either the undergraduate seminar, Spanish 280 (3 credit hours), which may be taken during either the junior or senior year, or a graduate seminar (300-level course of at least 3 credit hours) approved by the adviser to the Honors Program, which may only be taken during the senior year. (If Spanish 280 has not been 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 to an honors candidate.)

The remaining 6 hours of the honors major consist of a senior honors thesis, which is completed during the senior year as independent study (Spanish 299a–299b) 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 consists of a minimum of 18 credit hours. The specific requirements are as follows:

Spanish 201W (A more advanced composition course may be substituted) 3
Spanish 202 (A more advanced conversation course may be substituted) 3
Spanish 203 3
Three hours of advanced Spanish literature chosen from courses numbered from 230 to 281, or 294 3
Six hours of electives chosen from Spanish courses numbered 204–285, 294–296 6

Total hours: 18

Minor in Portuguese

The minor in Portuguese consists of a minimum of 15 credit hours. The specific requirements are as follows:

Portuguese 200 (Intermediate Portuguese; a more advanced language course may, subject to approval by the department, be substituted) 3
One of the following two courses: Portuguese 201 (Portuguese Composition and Conversation) or Portuguese 203 (Brazilian Pop Culture) 3
Portuguese 205 (Introduction to Luso-Brazilian Literature) 3
At least one of the following two courses: Portuguese 232 (Brazilian Literature through the Nineteenth Century) or Portuguese 233 (Modern Brazilian Literature) 3

At least 3 additional hours selected from among the 200-level courses listed below (or a 300-level graduate course for qualified seniors; procedures may be found in the Academic Regulations section of the Undergraduate Catalog).

Portuguese 225 (Brazilian Culture through Native Material), 232 (Brazilian Literature through the Nineteenth Century), 233 (Modern Brazilian Literature), 294 (Special Topics in Portuguese Language, Literature, and Civilization) 3

Total 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 hours in Spanish and Portuguese numbered 200 or above. The distribution is as follows:

1. Core requirements of Spanish 201W, 202, and 203; Portuguese 200, 201 (or 203), and 205.
2. At least two Spanish courses numbered between 221 and 281 or 294 or 296.
3. At least two of the following Portuguese courses: 225, 232, 233, 294, 341, 342, and 385.
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 42 hours of course work. A semester of study abroad in Spain is recommended. Course work for the major is distributed as follows:

Spanish (27 hours)

Spanish language and literature core courses (9 hours): Spanish 201W, 202, and 203 (a more advanced composition course may be substituted for 201W; a more advanced conversation course may be substituted for 202)
Spanish culture and civilization (6 hours): Two of the following: Spanish 204, 205, 221, 226, 296
Spanish literature (6 hours): Two Spanish courses numbered from 230 to 281, or 294
Elective (6 hours): Two additional Spanish courses that count toward the Spanish major. Students may substitute 3 hours of a language course in either Portuguese (102 or higher) or Catalan (102 or higher).

European Studies (15 hours)

European Studies core courses (9 hours): EUS 201, 203, and 250 (requires thesis)
Social Science (3 hours): PSCI 210, 211, or appropriate substitute with the approval of the EUS adviser
History (3 hours): One course in European history selected from: History 225, 226, 227, 228, 229, 245 or another course in European history in consultation with the EUS adviser

Program of Concentration in Spanish, Portuguese, and European Studies

Students pursuing the interdisciplinary major in Spanish, Portuguese, and European studies combine their focus on Spanish and Portuguese 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 42 hours of course work. A semester of study abroad in Vanderbilt in Spain is recommended. Course work for the major is distributed as follows:

Spanish (18 hours)

Spanish language and literature core courses (9 hours): Spanish 201W, 202, and 203 (a more advanced composition course may be substituted for 201W; a more advanced conversation course may be substituted for 202)
Spanish culture and civilization (3 hours): One of the following: Spanish 204, 205, 221, 226, 296
Spanish literature (3 hours): Any Spanish course numbered from 230 to 281 or 294
Elective (3 hours): Any additional Spanish course that counts toward the Spanish major

Portuguese (9 hours)

Portuguese language and literature courses (6 hours): Portuguese 200 and 205
Brazilian culture and civilization (3 hours): Portuguese 225

European Studies (15 hours)

European Studies core courses (9 hours): EUS 201, 203, and 250 (requires thesis)
Social Science (3 hours): PSCI 210, 211 or appropriate substitute from any other social studies discipline with approval of the EUS adviser
History (3 hours): One course in European history selected from: History 225, 226, 227, 228, 229, 245 or another course in European history in consultation with the EUS adviser

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.

Course descriptions begin on page 173.

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.

Course descriptions begin on page 213.

Spanish

Entering students should consult their advisers or 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 100. 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.) Students with a score of 4 or 5 on the AP Spanish Language or Literature examination should register for Spanish 201W (Intermediate Spanish Writing).

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 201W do not forfeit credit for Spanish 202.

Course descriptions begin on page 221.

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 M. Leah Lowe
DIRECTOR OF UNDERGRADUATE STUDIES Jon W. Hallquist
PROFESSORS EMERITI Robert A. Baldwin, Cecil D. Jones Jr.
ASSOCIATE PROFESSORS Phillip N. Franck, Jon W. Hallquist, Terryl W. Hallquist, M. Leah Lowe
ASSISTANT PROFESSOR E. Christin Essin
SENIOR LECTURERS Alexandra A. Sargent, Matthew D. Stratton

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. Students can either major or minor in theatre at Vanderbilt. The major consists of a minimum of 35 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 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 Karl Malden, Olympia Dukakis, Fiona Shaw, Eva Marie Saint, the Living Theatre, and Actors from the London Stage. The Department of Theatre also offers a month-long program of study of theatre in London during the May session. Students have the opportunity to witness a variety of theatrical experiences, 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.

The practice of theatre requires individuals 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. As a result of these experiences, recent graduates have also pursued careers in such widely diverse fields as law, medicine, psychology, and business.

Program of Concentration in Theatre

Students majoring in theatre are required to complete a minimum of 35 hours in courses concerned exclusively with theatre and dramatic literature. Required courses are 100/100W or 115F, 110, 111, 219, 230, and 261; two courses chosen from 201, 202W, 204, and 232; additional nine hours chosen from other theatre courses.

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 hours of the theatre major; (3) 3.0 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 hours of independent research 299a–299b (Honors Research and Thesis) normally taken during the senior year; (4) write an honors thesis to be completed by the spring 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 hours of courses in the department, all of which are involved in one of three major areas of work offered to majors. Theatre 100/100W or 115F and 232 are required in each option, plus courses from the following lists:

Dramatic Literature/Theatre History: Choose four from 201, 202W, 204, or 206W.

Acting/Directing: 219 is required; choose three from 220, 223, 230, or 231.

Design/Technology: 110 and 111 are required; choose two from 212, 213, 214, or 218.

Course descriptions begin on page 223.

Women's and Gender Studies

DIRECTOR Katherine B. Crawford
ASSOCIATE DIRECTOR Rory Dicker
DIRECTOR OF UNDERGRADUATE STUDIES Rory Dicker
PROFESSOR Charlotte Pierce-Baker
ASSISTANT PROFESSOR T. Benjamin Singer
SENIOR LECTURERS Rory Dicker (Women's and Gender Studies, English), Julia A. Fesmire (Women's and Gender Studies, English), Sandy Stahl (Women's and Gender Studies)

Affiliated Faculty

PROFESSORS Houston Baker (English), Ellen W. Clayton (Pediatrics, Law), Katherine B. Crawford (History), Cynthia Cyrus (Blair), Kate Daniels (English), Colin Dayan (English), Carolyn Dever (English, Women's and Gender Studies), Katharine Donato (Sociology), Lynn E. Enterline (English), Earl E. Fitz (Portuguese), Vivien G. Fryd (History of Art), Tracey George (Law), Barbara Hahn (German), Joni Hersch (Law), Cathy L. Jrade (Spanish), Vera Kutzinski (English), Amy-Jill Levine (New Testament Studies), Elizabeth Lunbeck (History), Leah S. Marcus (English), Jonathan M. Metzl (Sociology, Medicine, Health, and Society), Holly J. McCammon (Sociology), Thomas A. McGinn (Classical Studies), José Medina (Philosophy), Bonnie Miller-McLemore (Pastoral Theology and Counseling), Dana Nelson (English), Kelly Oliver (Philosophy), Mark Schoenfield (English), Kathryn Schwarz (English), Tracy D. Sharpley-Whiting (African American and Diaspora Studies, French), John Sloop (Communication Studies), Hortense J. Spillers (English), Carol M. Swain (Political Science), Cecelia Tichi (English), Benigno L. Trigo (Spanish and Portuguese), Arleen Tuchman (History), Holly Tucker (French)

ASSOCIATE PROFESSORS Brooke Ackerly (Political Science), Ellen Armour (Theology), Karen E. Campbell (Sociology), Laura Carpenter (Sociology), Beth Conklin (Anthropology), Nathalie Debrauwere-Miller (French and Italian), Idit Dobbs-Weinstein (Philosophy), Bonnie Dow (Communication Studies), Kathy Gaca (Classical Studies), Teresa Goddu (English), Lisa Guenther (Philosophy), Eva M. Harth (Chemistry), Sarah E. Igo (History), Christina Karageorgou-Bastea (Spanish and Portuguese), Melanie Lowe (Blair), Richard J. McGregor (Religious Studies), Catherine Molineux (History), Ifeoma C. Nwankwo (English), Emanuelle Oliveira (Spanish and Portuguese), Bridget Orr (English), Richard N. Pitt (Sociology), Lynn Ramey (French), Nancy Reisman (English), Ruth Rogaski (History), Allison Schachter (Jewish Studies), C. Melissa Snarr (Ethics and Society), Meike Werner (German), Edward Wright-Rios (History), Paul Young (English)

ASSISTANT PROFESSORS Rolanda Johnson (Nursing), Claire S. King (Communication Studies), Mireille Lee (History of Art), Linda Manning (Psychiatry)

SENIOR LECTURERS Jennifer Holt (Philosophy), Yollette Jones (History), Elena Olazagasti-Segovia (Spanish), Alexandra Sargent (Theatre)

LECTURERS Nancy L. Chick (Center for Teaching), Christy Halbert, Amanda Kinard (English), Gay Welch

WRITER IN RESIDENCE Alice Randall (English)

WOMEN'S and Gender Studies is an interdisciplinary program that examines gender as a social construct and as a historically variable component of culture that orders human behavior, perceptions, and values. Women's and Gender Studies teaches its students to reexamine traditional beliefs, to engage in new kinds of research, and to bring a critical perspective to the everyday practices that shape women's and men's lives in the United States and globally. Our courses and instructors pay particular attention to the consequences for women, men, and children of living in a world characterized by profound inequalities. The program also recognizes that race, class, ethnicity, age, sexuality, ability, and nationality are crucial aspects of identity and experience; these are understood to be intersecting and contested features of social life and are examined as such.

Because these aforementioned features of human experience cut across many disciplines, students in Women's and Gender Studies achieve a deeper understanding of the complexity and wholeness of human life. In the classroom, as in faculty and student research, our goal is to transform traditional ways of knowing by reaching across epistemological and methodological divisions to foster comprehensive, interdisciplinary perspectives on gender, sexuality, identity, and power in social life. Women's and Gender Studies not only compels us to recognize the problems and possibilities of the changing times in which we live, but also empowers us to effect change.

The Women's and Gender Studies program offers a major and a minor which provide an excellent foundation for students who plan to enter professional schools in law, medicine, and business; for those who pursue advanced degrees in women's and gender studies, the humanities, and social sciences; as well as for those who move into careers in business, government, research, teaching, health and social administration, counseling, journalism, advocacy, and the media.

Program of Concentration in Women's and Gender Studies

The interdisciplinary major in women's and gender studies consists of 36 hours of course work, distributed as follows:

1. *Core courses.* WGS 150 (or 150W), and 201, and either 246W or 250 or 250W. (9 hours)

2. *Senior Seminar.* WGS 291. Generally taken in the spring semester of the student's final year. (3 hours)

3. *24 hours of electives.* Any courses in the Women's and Gender Studies program; any courses dual-listed in Women's and Gender Studies; any course that meets the approval of the director, and is not used to satisfy the above requirements. These elective courses may include up to 6 credit hours of internship and/or independent research (Women's and Gender Studies 288a–288c).

Honors Program

The Honors Program in Women's and Gender Studies requires 36 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 Women's and Gender Studies majors with junior standing who have completed at least 24 credit hours of the major and who have earned a 3.0 cumulative grade point average and a 3.3 grade point average in Women's and Gender Studies courses. Students must be approved for acceptance into the Honors Program by the program director. To graduate with honors in Women's and Gender Studies, students must:

(a) Complete 36 hours of course work;
(b) Complete the required courses for the major (described above);
(c) Submit for approval a short description of the Honors project/thesis to the director of the Women's and Gender Studies program, no later than spring semester of the junior year;
(d) Complete 6 hours of independent research, Women's and Gender Studies 298 and 299 (Honors Research and Project), typically during the senior year under supervision of the project adviser. These 6 hours count as electives in the 36 hours of course work for Honors majors.
(e) Complete an honors project by spring of the senior year; and
(f) Pass an oral examination on the topic of the Honors project/thesis.

Candidates for honors in Women's and Gender Studies may, with the written permission of the director of the program, substitute one 300-level course in gender and/or feminist studies for one 200-level course required for the major. Such permission must be acquired prior to enrollment in the course.

Information concerning the Honors Program is available from the director of the Women's and Gender Studies program. College regulations governing honors may be found in this catalog under Honors Programs.

Minor in Women's and Gender Studies

The minor in Women's and Gender Studies consists of 18 hours of course work, distributed as follows:

1. *Core courses.* WGS 150 (or 150W), and 201, and either 246W or 250 or 250W. (9 hours)
2. *Senior Seminar.* WGS 291. Generally taken in the spring semester of the student's final year. (3 hours)
3. *At least 6 hours of electives.* Any courses in the Women's and Gender Studies program; any courses dual-listed in Women's and Gender Studies; any course that meets the approval of the director, and is not used to satisfy the above requirements.

Recommended courses organized by subject area are as follows.

**Note:* 115F First-Year Writing Seminars and Special Topics courses vary each semester. For full descriptions of current seminar offerings and information on whether a particular First-Year Writing Seminar can be used to fulfill requirements for the Women's and Gender Studies major or minor, consult the program director.

AFRICAN AMERICAN AND DIASPORA STUDIES: 115F, First-Year Writing Seminar*; 120, Diaspora Feminisms; 200, Popular Culture and Black Sexual Politics; 210, Black Masculinity: Social Imagery and Public Policy; 221, History and Myth: Black Women in the United States; 260, Black Diaspora Women Writers.

CLASSICAL STUDIES: 115F, First-Year Writing Seminar*; 220, Women, Sexuality, and the Family in Ancient Greece and Rome.

COMMUNICATION STUDIES: 115F, First-Year Writing Seminar*; 224, Rhetoric of Social Movements; 226, Women, Rhetoric, and Social Change; 235, Communicating Gender; 241, Rhetoric of Mass Media; 294, Selected Topics in Communication Studies*.

DIVINITY: 3412, Ethics and Society: Justice.

ENGLISH: 115F, First-Year Writing Seminar*; 102W, Literature and Analytical Thinking*; 118W, Introduction to Literary and Cultural Analysis*; 246, Feminist Theory; 260, Nineteenth-Century American Women Writers; 271, Caribbean Literature; 272, 272W, Movements in Literature*; 274, 274W, Major Figures in Literature*; 278, 278W, Colonial and Post-Colonial Literature*; 288, 288W, Special Topics in English and American Literature*.

FRENCH: 210, French and Francophone Cinema; 255, French Feminist Thought: Literary and Critical; 272, Adultery and Transgressions in Literature.

GERMAN: 235, German Romanticism; 237, Women and Modernity; 244, German Fairy Tales: From Brothers Grimm to Walt Disney; 271, Women at the Margins: German-Jewish Writers.

HISTORY: 115F, First-Year Writing Seminar*; 183, Sexuality and Gender in the Western Tradition to 1700; 184, Sexuality and Gender in the Western Tradition since 1700; 187, Pornography and Prostitution in History; 281, Women, Health, and Sexuality; 295, Majors Seminar*.

HISTORY OF ART: 242, Art since 1945; 262W, Gender and Sexuality in Greek Art; 290, Directed Study*; 295, Advanced Seminar in History of Art*.

ITALIAN: 250, *Famous Women* by Boccaccio.

JEWISH STUDIES: 115F, First-Year Writing Seminar*.

MEDICINE, HEALTH, AND SOCIETY: 115F, First-Year Writing Seminar*; 290, Special Topics*.

PHILOSOPHY: 235, Gender and Sexuality; 263, French Feminism.

POLITICAL SCIENCE: 209, Issues in Political Theory; 236, The Politics of Global Inequality; 264W, Global Feminisms; 271, Feminist Theory and Research; 283, Selected Topics in American Government*.

PSYCHOLOGY: 252, Human Sexuality.

RELIGIOUS STUDIES: 115F, First-Year Writing Seminar; 223, Ethics and Feminism; 225, Sexuality in the Hebrew Bible and the Ancient Near East; 226, Ancient Goddesses; 230, Women and Religion; 234, Post-Freudian

Theories and Religion; 238, Marriage in the Ancient Near East and the Hebrew Bible; 254, The Qur'an and Its Interpreters.

SOCIOLOGY: 224, Women and the Law; 225, Women and Social Activism; 230, The Family; 239, Women, Gender, and Globalization; 249, American Social Movements; 250, Gender in Society; 251, Women and Public Policy in America; 256, Race, Gender, and Sport; 257, Gender, Sexuality, and the Body; 268, Race, Gender, and Health; 272, Gender Identities, Interactions, and Relationships.

SPANISH: 275, Latin and Latin American Women Writers; 294, Special Topics in Hispanic Literature*.

THEATRE: 214, Elements of Basic Design: Costuming and Makeup; 216, The History of Fashion: Sex and Propaganda.

Course descriptions begin on page 224.

College of Arts and Science Courses

Explanation of Course Numbers and Symbols

100-level courses are primarily for freshmen and sophomores.

200-level courses are normally taken by juniors and seniors but are open also to qualified sophomores and freshmen.

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].

F symbols used in course numbers designate first-year writing seminar courses.

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

African American and Diaspora Studies

AADS 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

AADS 101. Introduction to African American and Diaspora Studies. 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)

AADS 102. Making of the African Diaspora. 1790 to the mid-twentieth century. Slave politics and abolition, the meaning of freedom after emancipation, black workers' struggle for democracy and citizenship. Resistance to empire and colonialism, migration, race and color ideology, religion, and culture. [3] (P)

AADS 110. Race Matters. 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)

AADS 115F. First-Year Writing Seminar. Topics Vary. [3]

AADS 120. Diaspora Feminisms. Introduction to feminism in multiple diasporic places and communities. Comparison of black feminisms across time and space. [3] (INT)

AADS 140. Blacks in Latin America and the Caribbean. 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)

AADS 145. Atlantic African Slave Trade. 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)

AADS 150. Reel to Real: Film Aesthetics and Representation. Oppositional cinematic practices of black filmmakers. Hollywood representations of blacks. The theoretical language of film criticism, styles, genres, periods. [3] (P)

AADS 160. Black Migrations in the African Diaspora. 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)

AADS 165. Global Africa. 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)

AADS 190. Global Anti-Blackness and Black Power. 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)

AADS 200. Popular Culture and Black Sexual Politics. Constructed images of black masculinity, femininity, and sexuality in popular culture. Social political hierarchies in society at-large. [3] (HCA)

AADS 201. African American Family History. Scholarly, political, and cultural interpretations. From slavery to family life in the post-Civil War South to urban, northern, and western migration, and finally to the postindustrial city at the end of the twentieth century. [3] (SBS)

AADS 202. Mystery, Murder, and Mayhem in Black Detective Fiction. 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)

AADS 203W. Blacks in the Military. 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)

AADS 204W. African American Children's Literature. From the seventeenth century to the present. Oral and written; fiction and non-fiction. Major works, writers, and genres. No credit for students who earned credit for 294a section 1 in spring 2011. [3] (HCA)

AADS 205. Haiti: Freedom and Democracy. 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)

AADS 207. Black Women and the Politics of Blackness and Beauty. 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)

AADS 208W. Soul Food as Text in Text: An Examination of African American Foodways. 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. Serves as repeat credit for students who have completed 265W and for students who completed ENGL 288W in fall 2010. [3] (HCA)

AADS 209. Black Paris - Paris Noir: The African Diaspora and the City of Light. 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. No credit for students who have earned credit for 115F section 5. [3] (INT)

AADS 210. Black Masculinity: Social Imagery and Public Policy. 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)

AADS 215. Black Issues in Education. 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)

AADS 220. Colonialism and After. 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)

AADS 221. History and Myth: Black Women in the United States. 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)

AADS 230. Race, Mixed Race, and "Passing." 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)

AADS 240. Slavery and Public Memory. The enslavement of Africans in the Americas as a subject of debate among popular and academic audiences. Slavery as depicted in literature, oral history, genealogy, film, and other creative productions. Public commemoration and tourist-related observance of slavery around the diaspora. [3] (SBS)

AADS 260. Black Diaspora Women Writers. 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)

AADS 265. Twentieth-Century African American Biography. Biographies and autobiographies as lenses for the study of historical trends and events; development of gender, sexual, and racial identities in subjects. [3] (US)

AADS 269. African Diaspora Ethnography. Anthropology and the construction of race and blackness. Ethnography as method. Notions of roots and routes in the making of African diaspora culture. [3] (INT)

AADS 270. Research Methods. Collection, management, analysis and interpretation of data for research. Introduction to qualitative computer software programs. [3] (SBS)

AADS 275. Black Europe. 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)

AADS 280a. Internship Readings and Research. 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 280a concurrently with and regardless of the numbers of hours taken in internship training in 280b. 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: 280b. [Variable credit: 3-6] (No AXLE credit)

AADS 280b. Internship Training. Graded on a Pass/Fail basis only and must be taken concurrently with 280a. 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 280a concurrently with and regardless of the numbers of hours taken in internship training in 280b. 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: 280a. [Variable credit: 1-9] (No AXLE credit)

AADS 289. Independent Study. 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 289] (No AXLE credit)

AADS 294a. Special Topics. 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)

AADS 298. Senior Honors Thesis. 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)

AADS 299. Senior Thesis in African American and Diaspora Studies. 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)

American Studies

AMER 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

AMER 100. Introduction to American Studies. An interdisciplinary approach to American culture, character, and life. Repeat credit for students who have completed 100W. [3] (US)

AMER 100W. Introduction to American Studies. An interdisciplinary approach to American culture, character, and life. Repeat credit for students who have completed 100. [3] (US)

AMER 115F. First-Year Writing Seminar. Topics Vary. [3]

AMER 201. Serving and Learning. 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)

AMER 202. Global Perspectives on the U.S. 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)

AMER 240. Topics in American Studies. 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)

AMER 280a. Internship Readings and Research. 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 280a concurrently with the completion of internship training, 280b; a minimum of 3 hours of 280a must be completed, independent of hours taken in 280b. Corequisite: 280b. [3-6]. (No AXLE credit)

AMER 280b. Internship Training. Offered on a pass/fail basis only and must be taken concurrently with 280a. 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 280a concurrently with the completion of internship training, 280b; a minimum of 3 hours of 280a must be completed, independent of hours taken in 280b. Corequisite: 280a. [Variable credit: 1-6] (No AXLE credit)

AMER 289a. Independent Readings and Research. Independent readings and/or research on approved topics relating to American society and culture. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

AMER 289b. Independent Readings and Research. Independent readings and/or research on approved topics relating to American society and culture. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

AMER 294. The American Studies Workshop. 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)

AMER 295. Undergraduate Seminar in American Studies. 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 295] (SBS)

AMER 297. Senior Project. A project conceived, developed, and completed under supervision of the American Studies faculty. Normally open only to senior American Studies majors. [3] (SBS)

AMER 298. Senior Honors Research. Acquisition, reading, and analysis of primary source research material. Open only to senior honors students. [3] (No AXLE credit)

AMER 299. Senior Honors Thesis. Writing an honors thesis under the supervision of the thesis adviser. [3] (No AXLE credit)

Anthropology

ANTH 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

ANTH 101. Introduction to Anthropology. 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)

ANTH 103. Introduction to Biological Anthropology. 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)

ANTH 104. Introduction to Archaeology. Archaeological interpretation and knowledge 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, and the rise of early cities and states. [3] (SBS)

ANTH 105. Introduction to Language and Culture. The interrelationship between language and culture. Language and thought, language ideologies, discourse, and linguistic and social identities. Culture and language change. [3] (SBS)

ANTH 115F. First-Year Writing Seminar. Topics Vary. [3]

ANTH 201. Introduction to Linguistics. 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)

ANTH 203. Anthropological Linguistics. An introduction to the study of language in its anthropological context. Language and culture, the structure of symbolic systems, vocabulary as a guide to the ways societies classify their universe. Linguistic analysis as a tool for ethno-graphic investigation. [3] (SBS)

ANTH 205. Race in the Americas. 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)

ANTH 206. Theories of Culture and Human Nature. 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. [3] (SBS)

ANTH 207. Environmental Anthropology. 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)

ANTH 208. Food Politics in America. 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)

ANTH 209. Global Wealth and Poverty. 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)

ANTH 210. Culture and Power in Latin America. 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)

ANTH 211. Archaeology. 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)

ANTH 212. Ancient Mesoamerican Civilizations. 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)

ANTH 213. The Archaeology of the Ancient Maya Civilization. Case study in cultural evolution. Archaeological evidence and social theory on the enigmatic origins, complex nature, and sudden collapse of the ancient Maya civilization. [3] (INT)

ANTH 215. The Collapse of Civilizations. Causes of the decline or collapse of complex societies. Old World and New World examples. Historical, anthropological, and paleoecological theories and controversies. [3] (P)

ANTH 216. Ancient Cities. 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)

ANTH 217. Old World Archaeology. 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)

ANTH 219. Comparative Writing Systems. 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)

ANTH 221. Maya Language and Literature. 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. [1-6; maximum of 6 credits total for all semesters of ANTH 221] (No AXLE credit)

ANTH 222. Anthropologies and Archaeologies of Community. 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] (SBS)

ANTH 224. Political Anthropology. Comparative and ethnographic analysis of political and legal systems. Formal and informal means of control in egalitarian and hierarchical societies. Anthropological theories of power, authority, influence, and leadership. Social and cultural dimensions of conflict, consensus, competition, and dispute resolution. [3] (SBS)

ANTH 225. Social Movements. 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)

ANTH 226. Myth, Ritual, Belief: The Anthropology of Religion. 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)

ANTH 231. Colonial Encounters in the Americas. 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)

ANTH 232. The Anthropology of Globalization. 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)

ANTH 234. Economic Anthropology. 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)

ANTH 240. Medical Anthropology. 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)

ANTH 241. Biology and Culture of Race. 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)

ANTH 242. Biology of Inequality. 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)

ANTH 244. Social and Health Consequences of Pandemics. 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)

ANTH 246. Andean Culture and Society. 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)

ANTH 247. The Aztecs. 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)

ANTH 248. Ancient Andean Civilizations. 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)

ANTH 249. Indigenous Peoples of Lowland South America. 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)

ANTH 250. Anthropology of Healing. 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)

ANTH 252. South American Archaeology. From 12,000 years ago to the present. Archaeology, ethnohistory, and ethnography. [3] (SBS)

ANTH 254. The Inca Empire. 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)

ANTH 260. Medicine, Culture, and the Body. (Also listed as History 283) Concepts of the human body from historical and cross-cultural perspectives. Exploration of experiences, representations, and medical theories of the body in birth, death, health, and illness in Western and non-Western societies. Comparison of methodologies of anthropology and history. Repeat credit for students who have completed HIST 283. [3] (P)

ANTH 261. Classic Maya Language and Hieroglyphs. Linguistic analysis of Classic Maya Hieroglyphs from A.D. 100-1000. Methods of decipherment, reading, and interpreting an ancient script. Role of socio-economic status in literacy. [3] (SBS)

ANTH 262. Cognitive Anthropology. A survey of methods and approaches in linguistics and the cognitive sciences. Exploration of culture and thought; how culture affects our ways of reasoning. [3] (SBS)

ANTH 267. Death and the Body. 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)

ANTH 269. Introduction to a Maya Language. Beginning instruction in Kaqchikel, K'iche', or Q'eqchi'. Basic speaking, reading, and writing skills. [3] (INT)

ANTH 270. Human Osteology. 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)

ANTH 272. Genetic Anthropology Lab Techniques. Applications of molecular anthropology techniques. DNA data analysis. Genetic methods and findings. DNA comparisons between world populations. Studies of ancient DNA. [3] (MNS)

ANTH 273. Human Evolutionary Genetics. Core issues in human evolution and population genetics. Molecular evidence for the origin of modern hu-

mans, reconstruction of human migrations, race, and detection of admixture between populations. Implications for human disease. Offered on a graded basis only. No credit for students who earned credit for 294 section 1 in fall 2012. Prerequisite or corequisite: BSCI 100, BSCI 105, or BSCI 110a. [3] (MNS)

ANTH 274. Health and Disease in Ancient Populations. 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)

ANTH 275. Sociocultural Field Methods. Research design and proposal writing, access to data, ethical issues, sampling techniques, interviewing questionnaire design and question writing, data analysis. [3] (SBS)

ANTH 277. Conversational K'iche' Maya. 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. Prerequisite: 269. [3] (INT)

ANTH 278. Advanced K'iche' Maya. Vocabulary, listening, and speaking skills. Modern and colonial texts. Cultural context of linguistic practices in K'iche' communities. Prerequisite: 277. [3] (INT)

ANTH 279. Ceramic Analysis in Archaeology. Ceramic sherds and vessels from ancient societies. Documentation of form, fabric, and decoration through illustrations. Qualitative and quantitative analysis. Integration with archaeological contexts for ceramic sequences and chronology. Technology, production, exchange, and consumption. Function and style. Emphasis on hands-on experience. [3] (HCA)

ANTH 280. Introduction to Geographic Information Systems and Remote Sensing. 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)

ANTH 281. Classic Maya Religion and Politics. Anthropology of politics and religion in Classic Maya culture, A.D. 100-1000. Interpretation of Classic Maya iconography and epigraphy. [3] (SBS)

ANTH 282. Anthropological Approaches to Human Landscapes. Anthropological approaches to sociocultural processes and human-environment interactions in the formation of landscapes and settlement systems. Relationship of archaeology and cultural anthropology in the understanding of social space, sacred landscapes, urban plans, and historical ecology. Cross-cultural comparisons. Methods of interpretation and quantification. [3] (SBS)

ANTH 283. Ethics in Anthropology, Archaeology, and Development. Ethical perspectives on contemporary problems of archaeological and anthropological research, interaction, and interpretation of past and present non-Western societies. [3] (P)

ANTH 284. Problems in Anthropological Theory. An advanced seminar in anthropological theory: cultural evolution, cultural history, ethnic relations, cultural ecology, archaeological method and theory, social structure, political organizations, religious institutions. [3] (SBS)

ANTH 285. Readings in K'iche' Mayan. Taught in K'iche'. Advanced vocabulary, grammar, syntax, reading, and writing. Colonial and modern texts. [3] (INT)

ANTH 286. Activism and Social Change: Theory, Experience, and Practice. 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)

ANTH 287a. Internship Readings and Research. 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 287a concurrently with and regardless of the numbers of hours taken in internship training in 287b. 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: 287b. [Variable credit: 1-6] (No AXLE credit)

ANTH 287b. Internship Training. Offered on a Pass/Fail basis only and must be taken concurrently with 287a. Hours of 287b 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 287a concurrently with and regardless of the numbers of hours taken in internship training in 287b. 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: 287a. [Variable credit: 1-9] (No AXLE credit)

ANTH 288a. Independent Research. Readings on selected topics (of the student's choice) and the preparation of reports. [1-3] (No AXLE credit)

ANTH 288b. Independent Research. Readings on selected topics (of the student's choice) and the preparation of reports. [1-3] (No AXLE credit)

ANTH 289. Field Research. 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)

ANTH 294. Special Topics. 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)

ANTH 298. Honors Research. 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 ANTH 298] (No AXLE credit)

ANTH 299. Honors Thesis. 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: 298. 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 ANTH 299] (No AXLE credit)

Arabic

ARA 210a. Elementary Arabic. 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)

ARA 210b. Elementary Arabic. Continuation of 210a. Development of reading, listening, speaking, and writing skills. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 210a. [5] (INT)

ARA 220a. Intermediate Arabic. Practice and development of all 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. Three hours of class work per week with an additional two hours per week of individual work in the language laboratory. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 210b. [4] (INT)

ARA 220b. Intermediate Arabic. Continuation of 220a. Practice and development of all 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. Three hours of class work per week with an additional two hours per week of individual work in the language laboratory. No credit for students who have earned credit for a more advanced Arabic language course. Prerequisite: 220a. [4] (INT)

ARA 230a. Advanced Arabic. 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: 220b. [3] (INT)

ARA 230b. Advanced Arabic. Continuation of 230a. 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: 230a. [3] (INT)

ARA 240. Media Arabic. 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: 230b. [3] (INT)

ARA 250. Arabic of the Qur'an and Other Classical Texts. 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. Offered on a graded basis only. Prerequisite: 240. [4] (INT)

Art Studio

ARTS 101. Introduction to Studio Art. Processes, fundamental elements, and principles of art. Drawing, painting, printmaking, sculpture, photography, installation, and time-based art. [3] (HCA)

ARTS 102. Drawing and Composition I. 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)

ARTS 110. Printmaking I: Relief and Intaglio. Introduction to printmaking media, including relief and etchings. Traditional and experimental approaches. Prerequisite: 102. [3] (HCA)

ARTS 111. Printmaking I: Screen Printing and Lithography. Introduction to printmaking media, including screen printing and lithography. Traditional and experimental approaches. Prerequisite: 102. [3] (HCA)

ARTS 112. Text and Image. Intersection of art and writing. History, theory, and practice. Zines, posters, photography, new media, and artists' books. [3] (HCA)

ARTS 115F. First-Year Writing Seminar. Topics Vary. [3]

ARTS 120. Photography I. Black-and-white photography. The aesthetics and techniques of the black-and-white medium; 35mm camera use, film exposure, image quality, and darkroom practices. [3] (HCA)

ARTS 121. Alternative Photography. Methods in image making. Photographic narratives, book making, pinhole cameras. [3] (HCA)

ARTS 122. Digital Imaging I. Creation of still, photo-based images using digital cameras, scanners, and computer software for digital output. Issues in contemporary art. [3] (HCA)

ARTS 130. Painting. Technical and conceptual aspects of painting. Individual instruction based on ability and experience. Prerequisite: 102. [3] (HCA)

ARTS 140. Ceramics. Introduction to ceramic design and preparation of clay objects. Hand-building, wheel-throwing, ceramic sculpture, surface enrichment, glazing, and kiln-firing. [3] (HCA)

ARTS 141. Sculptural Ceramics. Expressive art forms in clay. Assembled components, surface enrichment, and firing techniques. [3] (HCA)

ARTS 150. Sculpture. Changing concepts, materials, and processes in sculpture. Individual instruction based on ability and experience. [3] (HCA)

ARTS 151. Assemblage. Additive processes in sculpture. Problems involving found objects, kinetic/time-based ideas, and site-specific installations. [3] (HCA)

ARTS 152. Installation Art. Historical survey from 1900 to present; studio practice; formal and conceptual issues. [3] (HCA)

ARTS 171. Video Art. 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)

ARTS 172. Performance Art. 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)

ARTS 173. Interactive Portable Media and Cellphone Art. Use of inexpensive media devices such as cell phones, music players, and other portable electronics to create campus-wide participatory events, including art projects, web interactive movements, unexpected musical environments, and grass roots media campaigns. Collaborative and solo projects. [3] (HCA)

ARTS 180. Sources of Contemporary Art. Contemporary studio art practice, issues, and theories. Visual and conceptual influences on living artists; idea formation. Students must participate in artist-in-residence projects. [3] (HCA)

ARTS 190. Social Collective Art Practice. History and practice of making art within the social collective experience. Small group projects based on everyday living in The Commons. No credit for students who have taken 115F section 1. [3] (HCA)

ARTS 202. Drawing and Composition II. Prerequisite: 102. [3] (HCA)

ARTS 203. Drawing and Composition III. Prerequisite: 102 and 202. [3] (HCA)

ARTS 205. Life Drawing I. 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: 102. [3] (HCA)

ARTS 206. Life Drawing II. Prerequisite: 205. [3] (HCA)

ARTS 207. Drawing: Color Media I. Drawing on paper with wet and dry color media. Traditional and experimental approaches. Prerequisite: 102. [3] (HCA)

ARTS 208. Drawing: Color Media II. Prerequisite: 207. [3] (HCA)

ARTS 210. Printmaking II. Advanced study in traditional and experimental printmaking processes. Prerequisite: 110 or 111. [3] (HCA)

ARTS 211. Printmaking III. Advanced study in traditional and experimental printmaking processes. Prerequisite: 210. [3] (HCA)

ARTS 220. Photography II. Concepts and techniques of contemporary photographic practice; experimental projects and workshops using analog and digital media. Issues in contemporary art. Prerequisite: 120, 121, or 122. [3] (HCA)

ARTS 221. Photography III. Personal projects and critiques. Interdisciplinary possibilities. Issues in contemporary art. Prerequisite: 220 or 222. [3] (HCA)

ARTS 222. Digital Imaging II. Advanced exploration of digital software and its integration with traditional media. Personal projects and critiques. Issues in contemporary art. Prerequisite: 122. [3] (HCA)

ARTS 230. Painting II. Prerequisite: 130. [3] (HCA)

ARTS 231. Painting III. Prerequisite: 230. [3] (HCA)

ARTS 240. Ceramics II. 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: 140. [3] (HCA)

ARTS 241. Concept and Clay: Composite Forms. Technical ability in handling clay and conceptual and interpretive elements in functional and/or sculptural forms. Individual solutions in form and surface. Prerequisite: 140 or 141. [3] (HCA)

ARTS 250. Sculpture II. Prerequisite: 150. [3] (HCA)

ARTS 252. Advanced Installation Art. Techniques, processes, and placement. Conceptual and historical practices. Prerequisite: 152. [3] (HCA)

ARTS 271. Video Art II. Viewing, discussion, analysis and critiques. Relationship to photography, film, and performance. Group and individual productions. Prerequisite: 171. [3] (HCA)

ARTS 272. Performance Art II. 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: 172. [3] (HCA)

ARTS 273. Interactive Portable Media and Cell Phone Art II. Working with laptops and web cams, midi keyboards and digital music players, cell phones, video cameras, and other personal media devices to create art projects. Prerequisite: 171, 172, or 173. [3] (HCA)

ARTS 285. Maymester Contemporary Art Blitz. 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)

ARTS 288. Selected Topics. 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 288] (HCA)

ARTS 289. Independent Research. 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 289] (No AXLE credit)

ARTS 290. Directed Study: Senior Show and Contemporary Practices. 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)

ARTS 291. Independent Research: Senior Show. 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)

ARTS 299a. Senior Honors Research. 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)

ARTS 299b. Senior Honors Thesis. 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

ASIA 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

ASIA 150. Writing Southeast Asia. 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)

ASIA 115F. First-Year Writing Seminar. Topics Vary. [3]

ASIA 200W. Fashioning the Self: Coming of Age and Asian Modernities. 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)

ASIA 211. Popular Culture in Modern Japan. 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)

ASIA 212. Explorations of Japanese Animation. Introduction to the form and content of Japanese animation as globalized popular entertainment and as a speculative artistic medium that explores history and memory, nature and technology, human identity, carnivalesque comedy, and gender relations. [3] (INT)

ASIA 213W. Media Monsters in Contemporary Japan. 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)

ASIA 230. Chinese Medicine. (Formerly HIST 282). 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. Serves as repeat credit for students who completed HIST 282 prior to fall 2012 or HIST 248 prior to fall 2008. [3] (P)

ASIA 233. Self-Cultivation in Ancient China. 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)

ASIA 236. Inside China. 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)

ASIA 240. Current Japan-U.S. Relations. 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)

ASIA 250W. Hollywood Hanoi. 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. No credit for students who have earned credit for 115F section 4. [3] (INT)

ASIA 251. The Third World and Literature. 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)

ASIA 289a. Independent Study. 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)

ASIA 289b. Independent Study. 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)

ASIA 294a. Special Topics. 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)

ASIA 294b. Special Topics. 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)

ASIA 297. Junior Honors Readings. 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)

ASIA 299a. Honors Research. 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)

ASIA 299b. Honors Research. Research conducted in consultation with a member of the faculty or affiliated faculty of the program. Open only to senior honors majors. Prerequisite: 299a. [1-3] (No AXLE credit)

Astronomy

ASTR 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

ASTR 102. Introductory Astronomy: Stars and Galaxies. 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. No credit for students who have earned credit for 122 or 205. [3] (MNS)

ASTR 103. Introductory Astronomy Laboratory. Motion of the celestial sphere. Apparent and real motions of celestial bodies. Our view from inside the Milky Way. Observations of meteor showers, comets, and man-made satellites. Telescopic observations of astronomical objects. Stellar spectra. Laboratory ordinarily accompanied by 102 or 205. Satisfies the AXLE lab course requirement when completed with 102 or 205. No credit for students who have earned credit for 122. [1] (No AXLE credit)

ASTR 115F. First-Year Writing Seminar. Topics Vary. [3]

ASTR 122. Introduction to Observational Astronomy. Telescopic and naked-eye observations. Light, optics, telescopes, CCD cameras. Operation of telescopes. Motions of the sky. Kepler's laws. Phases of and craters on 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 science requirement. Students who have earned credit for 102 or 205 will earn one credit hour for this course. Students who have earned credit for 103 will earn three credit hours for this course. Students who have earned credit for 103 and either 102 or 205 will earn no credit hours for this course. [4] (MNS)

ASTR 201. The Solar System. The sky, ancient astronomy, orbits and gravity; seasons, the calendar, phases and motions of the moon; tides, eclipses, light and telescopes, the terrestrial planets, the giant planets and their moons and rings, asteroids, comets, meteorites, extra-solar planets, formation of planetary systems, the sun. [3] (MNS)

ASTR 203. Theories of the Universe. 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)

ASTR 205. Principles of Astrophysics. Origin and evolution of matter. The tools and methods of astrophysics, including light and telescopes. Cosmology and the Big Bang. Galaxies and star formation; physics of stars, including nucleosynthesis and stellar death; the solar system and the search for other worlds. Prerequisite: either PHYS 113a, 116a or 121a and either MATH 150a or 155a. [3] (MNS)

ASTR 250. Undergraduate Seminar. Directed readings and discussions of current topics in astronomy. Normally limited to juniors and seniors with preference to majors. Prerequisite: 102 or one semester of calculus-based physics. May be repeated for credit more than once, but students may earn only 1 credit per semester of enrollment. [1] (No AXLE credit)

ASTR 252. Stellar Astrophysics. 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 196, 198, or 208; either PHYS 223 or 223c; and either PHYS 225 or 225W. [3] (MNS)

ASTR 253. Galactic Astrophysics. 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 353. Prerequisite: MATH 198 and either PHYS 225 or 225W. [3] (MNS)

ASTR 254. Structure Formation in the Universe. 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: ordinary differential equations, one year of calculus-based physics, and CS 101 and 103. [3] (MNS)

ASTR 260. General Relativity and Cosmology. Introduction to Einstein's theory describing gravity as a curvature of spacetime. Tensor analysis, special relativity, differential geometry, spacetime curvature, the Einstein field equations, the Schwartzschild metric for stars and black holes, and the Friedmann-Robertson-Walker metric for cosmology. Prerequisite: PHYS 227a and 229a. [3] (MNS)

ASTR 289. Directed Studies. Individual research or readings under close faculty supervision. May be repeated for a total of 10 credits, but students may earn only up to 5 credits per semester of enrollment. [1-5; maximum of 10 credits total for all semesters of ASTR 289] (No AXLE Credit)

ASTR 291. Independent Study. Introduction to independent research and scholarly investigation under faculty supervision. May be repeated for a total of 10 credits, but students may earn only up to 6 credits per semester of enrollment. [1-6; maximum of 10 credits total for all semesters of ASTR 291] (No AXLE credit)

ASTR 296. Honors Research and Senior Thesis. Independent experimental or theoretical investigations of basic problems under faculty supervision which culminate in a written thesis submitted to the faculty. Required for departmental honors. Open to senior majors with departmental approval. May be repeated for a total of 10 credits, but students may earn only up to 6 credits per semester of enrollment. [1 -6; maximum of 10 credits total for all semesters of ASTR 296] (No AXLE credit)

Biological Sciences

BSCI 100. Biology Today. 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. Students who take 110a-110b shall not receive credit for 100. Corequisite: 101a. [3] (MNS)

BSCI 101a. Biology Today Laboratory. Laboratory investigations of the genetics, physiology, and ecology of plants and animals. One three-hour laboratory per week to accompany 100. Students who take 111a, 111b or 111c shall not receive credit for 101a. Corequisite: 100. Satisfies the AXLE lab course requirement when completed with 100. [1] (No AXLE credit)

BSCI 105. Human Biology. Recent advances in genetics, reproduction, and biotechnology. Social, legal, and ethical implications. Three lectures and one laboratory period per week. Not intended for students majoring in Biological Sciences. Students who take 110a-110b may not receive credit for 105. [4] (MNS)

BSCI 110a. Introduction to Biological Sciences. 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. Students who have completed 100 or 105 will forfeit full credit for 100 or three hours of credit for 105 upon completion of this course. Prerequisite or corequisite: CHEM 102a. [3] (MNS)

BSCI 110b. Introduction to Biological Sciences. Continuation of 110a. Cell communication. Physiology, organ function and development. Mendelian and population genetics. Evolution, ecology, and speciation. Populations, ecosystems, and conservation biology. Students who have completed 100 or 105 will forfeit full credit for 100 or three hours of credit for 105 upon completion of this course. Prerequisite: 110a. [3] (MNS)

BSCI 111a. Biological Sciences Laboratory. Laboratory to accompany 110a. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 110a. Students who have completed 101a or 105 will forfeit full credit for 101a or one hour of credit for 105 upon completion of this course. Prerequisite or corequisite: 110a. [1] (No AXLE credit)

BSCI 111b. Biological Sciences Laboratory. Laboratory to accompany 110b. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 110b. No credit for students who have earned credit for 111c. Students who have earned credit for 101a or 105 will forfeit full credit for 101a or one hour of credit for 105 upon completion of this course. Prerequisite or corequisite: 110b. [1] (No AXLE credit)

BSCI 111c. Biological Sciences Laboratory. Alternative to 111b. Directed research projects with emphasis on experimental design and analysis. Satisfies the AXLE lab course requirement when completed with 110b. Offered on a graded basis only. No credit for students who have earned credit for 111b. Students who have earned credit for 101a or 105 will forfeit full credit for 101a or one hour of credit for 105 upon completion of this course. Prerequisite or corequisite: 110b. Prerequisite: 111a. [2] (No AXLE credit)

BSCI 115F. First-Year Writing Seminar. Topics Vary. [3]

BSCI 118. Green Earth: The Biodiversity and Evolution of Plants. Biodiversity of plants, their adaptations to the environment, and their evolutionary and ecological relationships. Basic biology of plant form and function and the importance of plants for life on Earth. Not intended for students planning to major in biological sciences. Three hours of lecture and one laboratory period per week. [4] (MNS)

BSCI 201. Introduction to Cell Biology. 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: 110a. [3] (MNS)

BSCI 202. Cell Biology Laboratory. One three-hour laboratory and discussion period per week. Satisfies the AXLE lab course requirement when completed with 201. Prerequisite or corequisite: 201. [1] (No AXLE credit)

BSCI 205. Evolution. 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. Three lectures per week. No credit for graduate students in Biological Sciences. Prerequisite: 110b. [3] (MNS)

BSCI 210. Principles of Genetics. Basic principles and mechanisms of inheritance discussed and related to other biological phenomena and problems. Prerequisite: 110b. [3] (MNS)

BSCI 211. Genetics Laboratory. One three-hour laboratory and discussion period per week. Satisfies the AXLE lab course requirement when completed with 210. Prerequisite or corequisite: 210. [1] (No AXLE credit)

BSCI 218. Introduction to Plant Biology. 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: 110b. [4] (MNS)

BSCI 219. Introduction to Zoology. 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: 110b. [4] (MNS)

BSCI 220. Biochemistry. Structure and mechanism of action of biological molecules, proteins, nucleic acids, lipids, and polysaccharides. Enzymology. Carbohydrate metabolism. Prerequisite: 110a and either CHEM 218b or 220b. [3] (MNS)

BSCI 230. Biological Clocks. 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: 110b. [3] (MNS)

BSCI 233. Conservation Biology. 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: 110b. [3] (MNS)

BSCI 234. Microbiology. Microorganisms, including bacteria, viruses, and mobile genetic elements. The origins and universality of microbial life, modes of genome evolution, symbioses between microbes and animals, biotechnology, and human microbiome. Prerequisite: 110b. [3] (MNS)

BSCI 236. Parasitology. 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: 110b. [3] (MNS)

BSCI 237. Ecology Lab. One three-hour laboratory and discussion period or field trip per week. Satisfies the AXLE lab course requirement when completed with 238. Prerequisite or Corequisite: 238. [1] (No AXLE credit)

BSCI 238. Ecology. Population biology, evolutionary ecology, community structure, with emphasis on species interactions, including competition, predation, and symbiosis. Prerequisite: 110b. [3] (MNS)

BSCI 239. Behavioral Ecology. Theoretical and empirical research on shaping the evolution of behavior. The role of behavior in population regulation, habitat selection and spacing, foraging behavior, predatory-prey interactions, sexual selection, evolution of mating systems, new approaches to animal communication, game theory. Prerequisite: 110b and 205. [3] (MNS)

BSCI 243. Genetics of Disease. Application of genetics, cell biology, and molecular biology to the study of human diseases. Genomics, gene mapping, and molecular techniques. Animal models of disease. Chromosomal abnormalities, single-gene and multifactorial diseases, and epigenetics. Prerequisite: 210. [3] (MNS)

BSCI 245. Biology of Cancer. 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: 110b. [3] (MNS)

BSCI 247. Molecular Evolution. 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: 210 and 205. [3] (MNS)

BSCI 252. Cellular Neurobiology. 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: 110b. [3] (MNS)

BSCI 254. Neurobiology of Behavior. 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: 110b. [3] (MNS)

BSCI 256. Molecules of the Brain. 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: 110b. [3] (MNS)

BSCI 265. Nucleic Acid Transactions. Biochemistry of the expression, transmission, and maintenance of genetic information. DNA transcription, replication, recombination, and repair. Structural mechanisms and biological functions of DNA processing proteins. Offered on a graded basis only. Prerequisite: 220. [3] (MNS)

BSCI 266. Advanced Molecular Genetics. 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: 210. [3] (MNS)

BSCI 270. Statistical Methods in Biology. 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: 110b. [3] (MNS)

BSCI 272. Genome Science. 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: 110b. [3] (MNS)

BSCI 275. Undergraduate Seminar. 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)

BSCI 280. Introduction to Research. 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: 110a. Prerequisite or corequisite: 110b. [1] (No AXLE credit)

BSCI 282. Independent Reading. Reading and discussion of research papers with a member of the faculty. Prerequisite: consent of Biological Sciences 282 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 282] (No AXLE credit)

BSCI 283. Directed Laboratory Research. 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: 110b, one intermediate BSCI course appropriate to the major or 280, and consent of Biological Sciences 283 coordinator. [2-4] (No AXLE credit)

BSCI 286. Independent Laboratory Research. 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: 283, consent of Biological Sciences 286 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)

BSCI 296. Honors Research. 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)

Catalan

CTLN 102. Intensive Elementary Catalan. 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)

Chemistry

CHEM 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

CHEM 100a. Introductory Chemistry Laboratory. Laboratory to accompany 101a. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 101a. No credit for students who have earned credit for 104a or 219a. Corequisite: 101a. [1] (No AXLE credit)

CHEM 100b. Introductory Chemistry Laboratory. Laboratory to accompany 101b. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 101b. No credit for students who have earned credit for 104b or 219b. Corequisite: 101b. [1] (No AXLE credit)

CHEM 101a. Introductory Chemistry. 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. No credit for students who have earned credit for 102a, 218a, or 220a. [3] (MNS)

CHEM 101b. Introductory Chemistry. 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. No credit for students who have earned credit for 102b, 218b, or 220b. [3] (MNS)

CHEM 102a. General Chemistry. 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. Students who have earned credit for 101a will forfeit credit for 101a upon completion of this course. Corequisite: 104a. [3] (MNS)

CHEM 102b. General Chemistry. Continuation of 102a. 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. Students who have earned credit for 101b will forfeit credit for 101b upon completion of this course. Prerequisite: 102a. Corequisite: 104b. [3] (MNS)

CHEM 104a. General Chemistry Laboratory. Laboratory to accompany 102a. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 102a. Students who have earned credit for 100a will forfeit credit for 100a upon completion of this course. Prerequisite or corequisite: 102a. [1] (No AXLE credit)

CHEM 104b. General Chemistry Laboratory. Laboratory to accompany 102b. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 102b. Students who have earned credit for 100b will forfeit credit for 100b upon completion of this course. Prerequisite: 104a. Corequisite: 102b. [1] (No AXLE credit)

CHEM 115F. First-Year Writing Seminar. Topics Vary. [3]

CHEM 202. Introduction to Bioinorganic Chemistry. Functions of inorganic elements in living cells. The manner in which coordination can modify the properties of metallic ions in living systems. Prerequisite: 218b or 220b. [3] (MNS)

CHEM 203. Inorganic Chemistry. 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: 230 or 231. [3] (MNS)

CHEM 207. Introduction to Organometallic Chemistry. A general description of the preparation, reaction chemistry, molecular structure, bonding, and spectroscopic identification of organometallic compounds of the transition metals. Prerequisite: 203. [3] (MNS)

CHEM 210. Introduction to Analytical Chemistry. Fundamental quantitative analytical chemistry with emphasis on principles of analysis, separations, equilibria, stoichiometry and spectrophotometry. No credit for graduate students in chemistry. Corequisite: 212a. [3] (MNS)

CHEM 211. Instrumental Analytical Chemistry. Chemical and physical principles of modern analytical chemistry instrumentation. Prerequisite: 210 and either 218b or 220b. [3] (MNS)

CHEM 212a. Analytical Chemistry Laboratory. Laboratory to accompany Chemistry 210. No credit for graduate students in chemistry. One four-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 210. Prerequisite or corequisite: 210. [1] (No AXLE credit)

CHEM 218a. Organic Chemistry for Advanced Placement Students. Fundamental types of organic compounds; their nomenclature, classification, preparations, reactions, and general application. Three hours of lecture and one hour of recitation each week. Equivalent to 220a. No credit for students who have earned credit for 220a or 220b. Prerequisite: enrollment limited to first-year students with advanced placement chemistry scores of 5, or the approval of the director of undergraduate studies. Corequisite: 219a. [3] (MNS)

CHEM 218b. Organic Chemistry for Advanced Placement Students. Continuation of 218a. Fundamental types of organic compounds; their nomenclature, classification, preparations, reactions, and general application. Three hours of lecture and one hour of recitation each week. Equivalent to 220b. No credit for students who have earned credit for 220a or 220b. Prerequisite: enrollment limited to first-year students with advanced placement chemistry scores of 5, or the approval of the director of undergraduate studies. Corequisite: 219b. [3] (MNS)

CHEM 219a. Organic Chemistry Laboratory. Laboratory to accompany 218a or 220a. One four-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 218a or 220a. Prerequisite or corequisite: 218a or 220a. [1] (No AXLE credit)

CHEM 219b. Organic Chemistry Laboratory. Laboratory to accompany 218b or 220b. One four-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 218b or 220b. Prerequisite or corequisite: 218b or 220b. [1] (No AXLE credit)

CHEM 220a. Organic Chemistry. 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 218a. No credit for graduate students in chemistry. Prerequisite: 102b. Corequisite: 219a. [3] (MNS)

CHEM 220b. Organic Chemistry. Continuation of 220a. 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 218b. No credit for graduate students in chemistry. Prerequisite: 220a. Corequisite: 219b. [3] (MNS)

CHEM 220c. Organic Chemistry Structure and Mechanism. Advanced topics in organic chemistry. Stereochemistry and conformational analysis, mechanisms of organic reactions, linear free-energy relationships, reactive intermediates. Three lectures and one recitation hour per week. Prerequisite: either 218b or 220b and either 230 or 231. [4] (MNS)

CHEM 222. Physical Organic Chemistry. Structure and bonding in organic molecules. Reactive intermediates and organic reaction mechanisms. Prerequisite: 220c. [3] (MNS)

CHEM 223. Advanced Organic Reactions. A comprehensive study of organic reactions and their application to the preparation of small molecules. Prerequisite: 220c. Three lectures per week. [3] (MNS)

CHEM 224. Bioorganic Chemistry. Essential metabolites including vitamins, steroids, peptides, and nucleotides. Consideration of phosphate esters and the synthesis of oligodeoxynucleotides. Three lectures per week. Prerequisite: 218b or 220b. [3] (MNS)

CHEM 225. Spectroscopic Identification of Organic Compounds. Theoretical and practical aspects of spectroscopic methods, with an emphasis on NMR spectroscopy, for structural characterization of organic compounds. Prerequisite: 218b or 220b. [3] (MNS)

CHEM 226. Drug Design and Development. 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: 224 or BSCI 220. [3] (MNS)

CHEM 227W. Forensic Analytical Chemistry. 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: 210 and 212a. [3] (MNS)

CHEM 230. Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics. 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 116a or 121a. Prerequisite: MATH 150b or 155b. [3] (MNS)

CHEM 231. Biophysical Chemistry: Thermodynamics in Chemical and Biological Systems. Chemical thermodynamics and equilibrium, their statistical foundation, and applications to chemical and biological phenomena in biomedical research. Prerequisite or corequisite: PHYS 116a or 121a. Prerequisite: MATH 150b or 155b. [3] (MNS)

CHEM 235. Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modifications. 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: 102b. [3] (MNS)

CHEM 236. Physical Chemistry Laboratory. 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 175 recommended. Prerequisite: 219b and either MATH 150b or 155b. [1] (No AXLE credit)

CHEM 240. Introduction to Nanochemistry. Synthesis, characterization, and assembly of nanoscale materials. No credit for graduate students in chemistry. Prerequisite: 102b. [3] (MNS)

CHEM 250. Chemical Literature. Assigned readings and problems in the nature and use of the chemical literature. Prerequisite: 218b or 220b. [1] (No AXLE credit)

CHEM 282. Undergraduate Research. 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)

CHEM 291a. Readings for Honors. Open only to students in the departmental honors program. General reading supervised by research adviser. [2] (No AXLE credit)

CHEM 291b. Readings for Honors. Open only to students in the departmental honors program. Continuation of 291a, with emphasis on research planned. [2] (No AXLE credit)

CHEM 292a. Honors Research. 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)

CHEM 292b. Honors Research. 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)

CHEM 292c. Honors Research. 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)

CHEM 295a. Advanced Integrated Laboratory. Multidisciplinary laboratory projects. Experimental design, synthetic techniques, chemical analysis, spectroscopy, and computational methods. Offered on a graded basis only. Limited to senior majors. Prerequisite: 210, 212a. [3] (No AXLE credit)

CHEM 295b. Advanced Integrated Laboratory. Continuation of 295a. Offered on a graded basis only. Limited to senior majors. Prerequisite: 295a. [3] (No AXLE credit)

Chinese

CHIN 200a. Basic Chinese. 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 201 or a more advanced Chinese language course. [3] (No AXLE credit)

CHIN 200b. Basic Chinese. Continuation of 200a. No credit for students who have earned credit for 201 or a more advanced Chinese language course. Prerequisite: 200a. [3] (No AXLE credit)

CHIN 201. Elementary Chinese I. 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 200b or a more advanced Chinese language course. [5] (No AXLE credit)

CHIN 202. Elementary Chinese II. Continuation of 201. 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 a more advanced Chinese language course. Prerequisite: 200b or 201. [5] (INT)

CHIN 211. Intermediate Chinese I (Formerly 214). Oral and written language training. Two hours of lecture and three hours of drill per week. Repeat credit for students who completed 214. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 202. [5] (INT)

CHIN 212. Intermediate Chinese II (Formerly 216). Continuation of 211. Language training in oral and written Chinese. Two hours of lecture and three hours of drill per week. Serves as repeat credit for 216. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 211. [5] (INT)

CHIN 225. Chinese for Heritage Learners I. 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)

CHIN 226. Chinese for Heritage Learners II. Continuation of 225. 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: 225. [3] (INT)

CHIN 231. Calligraphy. Basic skills of writing standard script kaishu. Basic aesthetic of Chinese calligraphy. No Chinese language background necessary. [1] (No AXLE credit)

CHIN 241. Advanced Chinese I. 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: 212. [3] (INT)

CHIN 242. Advanced Chinese II. Continuation of 241. 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: 241. [3] (INT)

CHIN 251. Readings in Modern Chinese Media. Books, newspapers, Internet, and television documents and productions pertaining to political, social, and economic issues in China, including foreign trade-related issues. Prerequisite: 242. [3] (INT)

CHIN 252. Readings in Modern Chinese Media. Continuation of 251. Books, newspapers, and Internet sources pertaining to political, social, and cultural issues. Prerequisite: 242. [3] (INT)

CHIN 253. Classical Chinese Literature and Philosophy. 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: 242. [3] (INT)

CHIN 254. Readings in Modern Literary Chinese. 1910 to the present. Chinese literature and poetry. Linguistic transformations that produced modern literary Chinese. Prerequisite: 242. [3] (INT)

CHIN 255. Business Chinese I. Language skills for listening, speaking, reading, and writing in business environments. Modern China from economic and business perspectives. No credit for students who have earned credit for a more advanced Chinese language course. Prerequisite: 242. [3] (INT)

CHIN 256. Business Chinese II. Continuation of 255. Language skills for listening, speaking, reading, and writing in business environments. Modern China from economic and business perspectives. Prerequisite: 255. [3] (INT)

CHIN 289a. Independent Study. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

CHIN 289b. Independent Study. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

Classics

CLAS 115F. First-Year Writing Seminar. Topics Vary. [3]

CLAS 130. Greek Civilization. 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)

CLAS 146. Roman Civilization. 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)

CLAS 150. The Greek Myths. 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)

CLAS 204. Archaic and Classical Greek Art and Architecture, 1000 to 400 B.C.E. Sculpture, vase painting, architecture, and the minor arts. Formal and stylistic developments in relation to changing cultural background. No credit for students who have earned credit for HART 255. Repeat credit for students who have completed HART 257. [3] (HCA)

CLAS 205. Late Classical Greek and Hellenistic Art and Architecture. 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. No credit for students who have earned credit for HART 255. Repeat credit for students who have completed HART 258. [3] (HCA)

CLAS 206. Roman Art and Architecture. 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)

CLAS 207. History of the Ancient Near East. 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)

CLAS 208. History of Greece to Alexander the Great. 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)

CLAS 209. Greece and the Near East from Alexander to Theodosius. From Alexander's conquest of the Persian Empire to the ascendancy of Christianity in the late fourth century. Emphasis on social, cultural and religious transformations, within the framework of political history. [3] (INT)

CLAS 211. The Greek City. 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. Serves as repeat credit for students who have completed HART 263. [3] (SBS)

CLAS 212. History of the Roman Republic. 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)

CLAS 213. History of the Roman Empire. 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)

CLAS 220. Women, Sexuality, and the Family in Ancient Greece and Rome. 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)

CLAS 222. Classical Tradition in America. 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)

CLAS 223. From Late Antiquity to Islam. The Eastern Roman Empire from Constantine to the Arab conquests. Political, social, cultural, and religious history, including monasticism, barbarian invasions, and the changing roles of the Emperor and Church. Special attention to developments in urban life and landscape. [3] (INT)

CLAS 224. The Ancient Origins of Religious Conflict in the Middle East. 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)

CLAS 225. Humor, Ancient to Modern. Ancient comic forms juxtaposed with modern theories of humor. Aristophanic Old Comedy, New Comedy, and Satire. Modern parallels. [3] (HCA)

CLAS 226. Warfare in the Ancient Mediterranean. 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)

CLAS 231. Akkadian. 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)

CLAS 232. Akkadian. Continuation of 231. 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)

CLAS 236. Culture of the Ancient Near East. 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)

CLAS 238. The Amarna Age. 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)

CLAS 240. The Trojan War in History, Art, and Literature. 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)

CLAS 241. Uncovering Greek Religion: Cults, Festivals, and Sanctuaries in the Ancient World. 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. No credit for students who have earned credit for 245. [3] (INT)

CLAS 242. Archaeology, History, and Culture in Greece: Kenchreai Field School. 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)

CLAS 243. Alexander the Great. 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)

CLAS 244. History and Art of Ancient Rome. 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)

CLAS 245. The Archaeology of Greek Sanctuaries. Study of ancient Greek religious worship through an examination of temples, altars, cult images, votives, priests, and processions. Panhellenic sanctuaries and oracular and mystery cults. No credit for students who have earned credit for 241. [3] (INT)

CLAS 260. Roman Law. 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. [3] (SBS)

CLAS 289. Independent Study. 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 289] (No AXLE credit)

CLAS 295. Periclean Athens. Ancient Athens in the age of Pericles. Literature, history, art, architecture, and archaeological evidence. Prerequisite: senior standing with a major in Classics, Classical Civilization, or Classical Languages. Repeat credit for students who have completed 295W. [3] (HCA)

CLAS 295W. Periclean Athens. Ancient Athens in the age of Pericles. Literature, history, art, architecture, and archaeological evidence. Prerequisite: senior standing with a major in Classics, Classical Civilization, or Classical Languages. Repeat credit for students who have completed 295. [3] (HCA)

CLAS 296W. Augustan Rome. Social, administrative, religious, and military reforms. Common themes in art, architecture, and literature; changes in national identity in the transition from Republic to Empire. Prerequisite: senior standing with a major in Classics, Classical Civilization, or Classical Languages. [3] (HCA)

CLAS 299a. Senior Honors Thesis. Open only to seniors in the departmental honors program. [3] (No AXLE credit)

CLAS 299b. Senior Honors Thesis. Open only to seniors in the departmental honors program. [3] (No AXLE credit)

Communication of Science and Technology

CSET 150. Special Topics. 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. [3] (No AXLE credit)

CSET 201. Science Communication Tools and Techniques. Translating technical research for a general readership. Benefits and limitations of different formats, texts, and media for telling stories about science. Repeat credit for students who completed 150 in fall 2011 or fall 2012. No credit for students who earned credit for CMST 237 before fall 2013. [3] (HCA)

CSET 289. Directed Study. 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)

CSET 290. Project in Science Writing and Communicating. 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: 289 and approval of the program director. [1-3] (No AXLE credit)

CSET 296. Honors Thesis. 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: 289 and 290. [1-3] (No AXLE credit)

Communication Studies

CMST 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

CMST 100. Fundamentals of Public Speaking. Theory and practice in speaking before an audience. Problems of preparation, content, organization, language, and delivery are treated. [3] (HCA)

CMST 101. Interpersonal Communication. 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)

CMST 115F. First-Year Writing Seminar. Topics Vary. [3]

CMST 200. Argumentation and Debate. A course in the practice of debate examining argumentation theory. Emphasis on forms of reasoning and use of evidence in debate. Prerequisite: 100. [3] (HCA)

CMST 201. Persuasion. 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: 100. [3] (HCA)

CMST 204. Organizational and Managerial Communication. Theory and practice of communication in relation to organizations and management with application to leadership, values and ethics, organizational communication theory, and organizational conflict. Prerequisite: 100. [3] (HCA)

CMST 210. Rhetoric and Civic Life. 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)

CMST 220. Rhetoric of the American Experience, 1640-1865. 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)

CMST 221. Rhetoric of the American Experience, 1865 to 1945. 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)

CMST 222. The Rhetorical Tradition. Development of rhetorical concepts from classical Greece to the present. Significant rhetoricians and texts. The impact of context on rhetoric. [3] (HCA)

CMST 223. Values in Modern Communication. 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)

CMST 224. Rhetoric of Social Movements. 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)

CMST 225. Rhetoric of the American Experience, 1945-Present. 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. Serves as repeat credit for students who completed 294 section 3 in fall 2009. [3] (US)

CMST 226. Women, Rhetoric, and Social Change. Reform rhetoric of American women from 1790 to 1920. Historical influences on women's social activism and emergence on the public platform; rhetorical issues facing women speakers. Rhetorical strategies used by them as advocates for education, labor, abolition, temperance, and the Woman Suffrage Movement. [3] (US)

CMST 235. Communicating Gender. 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)

CMST 241. Rhetoric of Mass Media. 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)

CMST 243. Cultural Rhetorics of Film. Film as rhetorical response to historical and cultural change. Filmic treatment of historical trauma; related genres, such as horror and melodrama. [3] (HCA)

CMST 244. Politics and Mass Media. 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)

CMST 254. Methods of Rhetorical Analysis. Application of methods of rhetorical analysis to the practice of criticism. Critical perspectives to be explored include those of Burke, Leff, Lucaites, Fisher, Osborn, Griffin, Campbell, and Jamieson. Repeat credit for students who have completed 254W. [3] (HCA)

CMST 254W. Methods of Rhetorical Analysis. Application of methods of rhetorical analysis to the practice of criticism. Critical perspectives to be explored include those of Burke, Leff, Lucaites, Fisher, Osborn, Griffin, Campbell, and Jamieson. Repeat credit for students who have completed 254. [3] (HCA)

CMST 289. Independent Study. A research project in rhetorical criticism to be arranged with the individual instructor. Designed for students who have taken either 220 or 221. May be repeated for a total of 6 credits in 289 and 290 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 289 and 290] (No AXLE credit)

CMST 290. Directed Readings. 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 289 and 290 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 289 and 290] (No AXLE credit)

CMST 294. Selected Topics in Communication Studies. 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)

CMST 295. Seminars in Selected Topics. Topics of special interest. May be repeated for a total of 6 credits in 295 and 296 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 295 and 296] (No AXLE credit)

CMST 296. Seminars in Selected Topics. Topics of special interest. May be repeated for a total of 6 credits in 295 and 296 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 295 and 296] (No AXLE credit)

Earth and Environmental Sciences

EES 101. The Dynamic Earth: Introduction to Geological Sciences. 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)

EES 103. Oceanography. An introduction to the geology, biology, chemistry, and physics of the marine environment. [3] (MNS)

EES 107. Volcanoes: Impacts on Earth and Society. How magmas form and volcanoes erupt; eruption processes and their hazards to society. Volcanic influence on human history and the evolution of the Earth. No credit for students who have earned credit for 115F section 3. [3] (MNS)

EES 108. Earth and Atmosphere. 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)

EES 111. Dynamic Earth Laboratory. Laboratory to accompany 101. Corequisite: 101. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 101. [1] (No AXLE credit)

EES 113. Oceanography Laboratory. Laboratory to accompany 103. Corequisite: 103. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 103. [1] (No AXLE credit)

EES 114. Ecology, Evolution, and Climates through Time. 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)

EES 115F. First-Year Writing Seminar. Topics Vary. [3]

EES 201. Global Climate Change. Science and policy of global climate change: history and causes of climate change in Earth's past, with emphasis on 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. Prerequisite: 101 or 108. [3] (MNS)

EES 202. Earth Systems through Time. Effects of feedbacks between cycles, including the plate tectonic, rock, hydrologic, and carbon cycles, on the lithosphere, hydrosphere, biosphere, and atmosphere at diverse intervals in the Earth's history. Present and future implications. Evidence recorded in rocks and fossils and its interpretation. Three hours of lecture and one laboratory per week. Serves as repeat credit for 102. Prerequisite: 101 and 111. [4] (MNS)

EES 205. Science, Risk, and Policy. 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)

EES 210. Field Methods. 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. [3] (MNS)

EES 220. Life Through Time. 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. Prerequisite: 101, BSCI 100, or BSCI 110b. [4] (MNS)

EES 225. Earth Materials. 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: 101. [4] (MNS)

EES 226. Petrology. 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: 225. No credit for graduate students in EES. [4] (MNS)

EES 230. Sedimentology. 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. No credit for graduate students in EES. Prerequisite or corequisite: 202. [4] (MNS)

EES 240. Structural Geology and Rock Mechanics. Principles of rock deformation; mechanics, fractures, folds, foliation, primary structures. Field trips. Three lectures and one laboratory period per week. No credit for graduate students in EES. Prerequisite: 202. [4] (MNS)

EES 255. Transport Processes in Earth and Environmental Systems. 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)

EES 260. Geochemistry. 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: 225 and CHEM 102b. [3] (MNS)

EES 261. Geomorphology. 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: 101. [3] (MNS)

EES 268. Paleoclimates. 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: 101 and 202. [3] (MNS)

EES 275. Sustainable Systems Science. A system dynamics approach to examining principles, problems, and solutions pertaining to the links among the environment, society, and economy. Components of sustainable systems. No credit for students who earned credit for 390 section 3 in spring 2010. Prerequisite: at least junior standing with a major in Earth and Environmental Sciences, Biological Sciences, Chemistry, Physics, or the School of Engineering. [3] (MNS)

EES 282. Paleoecological Methods. 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. Serves as repeat credit for students who completed 390 section 4 in spring 2010. Prerequisite: 101. [3] (MNS)

EES 285. Volcanic Processes. 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: 226. [3] (MNS)

EES 289a. Directed Study. 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)

EES 289b. Directed Study. 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)

EES 290. Special Topics. 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: 101. [3] (No AXLE credit)

EES 291a. Independent Study. 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)

EES 291b. Independent Study. 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)

EES 292a. Senior Honors Research. 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)

EES 292b. Senior Honors Research. 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)

EES 299. Senior Seminar. 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)

Economics

ECON 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

ECON 100. Principles of Macroeconomics. The role of scarcity and prices in allocating resources. National income, fluctuations in unemployment and price level, monetary and fiscal policy. [3] (SBS)

ECON 101. Principles of Microeconomics. The behavior of households and business in markets. Competition, monopoly, and rivalry in product and factor markets. Equilibrium. Income distribution. International trade. Prerequisite: 100. [3] (SBS)

ECON 115F. First-Year Writing Seminar. Topics Vary. [3]

ECON 150. Economic Statistics. The use of quantitative data in understanding economic phenomena. Probability, sampling, inference, and regression analysis. No credit for students who have earned credit for 155. Prerequisite: Math 140, 150a, or 155a. [3] (SBS)

ECON 155. Intensive Economic Statistics. Quantitative techniques in economic analysis. Probability sampling, inference, and multiple regression. No credit for students who have earned credit for 150. Prerequisite: MATH 140, 150a or 155a. [3] (SBS)

ECON 209. Money and Banking. 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: 100 and 101. [3] (SBS)

ECON 212. Labor Economics. 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: 100 and 101. [3] (SBS)

ECON 221. Health Care Policy. Health care markets in the United States. Supply and demand, social insurance policies, pharmaceuticals, malpractice, and health care reform. Prerequisite: 100 and 101. [3] (SBS)

ECON 222. Latin American Development. 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: 100. [3] (SBS)

ECON 224. Russia in the World Economy. Trade, finance, labor markets, income, and economic growth following the introduction of a market economy. Energy, manufacturing, and education sectors. Politics, government, and social change. Fiscal, monetary, and exchange rate policies. Prerequisite: 100 and 101. [3] (SBS)

ECON 226. Economic History of the United States. Economic development of the United States from the Colonial period to the present. Interrelated changes in economic performance, technology, institutions, and governmental policy. Prerequisite: 100 and 101. [3] (US)

ECON 228. Environmental Economics. 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: 100 and 101. [3] (SBS)

ECON 230. Plunder and Pillage: The Economics of Warfare and Conflict. International and domestic economic conflict. Offensive and defensive strategies. Fortifications, strategic bombing, and conscription. Corporate takeovers, bargaining failures, and labor strikes. Prerequisites: 100 and 101. [3] (SBS)

ECON 231. Intermediate Microeconomic Theory. 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. No credit for graduate students in economics. Prerequisite: 100, 101, and either MATH 140, 150a, or 155a. [3] (SBS)

ECON 232. Intermediate Macroeconomic Theory. National income accounting and analysis. Classical, Keynesian, and contemporary models determining national income, employment, liquidity, price level, and economic growth. No credit for graduate students in economics. Prerequisite: 100, 101, and either MATH 140, 150a, or 155a. [3] (SBS)

ECON 235. Strategic Analysis. 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: 100 and 101. [3] (SBS)

ECON 242. Sports Economics. 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. No credit for students who have earned credit for 270. Prerequisite: 100 and 101. [3] (SBS)

ECON 249. Special Topics. 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: 100 and 101. [3] (No AXLE credit)

ECON 251. Wages, Employment, and Labor Markets. Theories of wages and employment, dual labor markets, internal labor markets, and labor's share of national income. Empirical studies of labor mobility, the effects of unions on relative wages and resource allocation, occupational and industrial wage differentials, and selected labor markets. Prerequisite: 231. [3] (SBS)

ECON 253. Introduction to Econometrics. Quantitative methods of economic analysis. Measurement, specification, estimation, and interpretation of economic models. Econometric computation using microcomputers. No credit for graduate students in economics. Prerequisite: 231 and either 150, 155, or both MATH 218L and either MATH 216 or 218. [3] (SBS)

ECON 254. Public Finance. 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: 231. [3] (SBS)

ECON 255. Social Choice Theory. Strategic and non-strategic social choice theory. Preference aggregation, formal models of voting, and matching. Prerequisite: 231 or PHIL 202 or any Mathematics course numbered 200 or above. [3] (SBS)

ECON 256. Seminar in Macroeconomic Policy. 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 256W. Limited to majors in economics and public policy. Prerequisite: 231 and 232. [3] (SBS)

ECON 256W. Seminar in Macroeconomic Policy. 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 256. Limited to majors in economics and public policy. Prerequisite: 231 and 232. [3] (SBS)

ECON 257. Seminar in Microeconomic Policy. Intensive study of three or four current problems in microeconomic policy. Repeat credit for students who have completed 257W. Limited to majors in economics and public policy. Prerequisite: 231. [3] (SBS)

ECON 257W. Seminar in Microeconomic Policy. Intensive study of three or four current problems in microeconomic policy. Repeat credit for students who have completed 257. Limited to majors in economics and public policy. Prerequisite: 231. [3] (SBS)

ECON 259. Financial Instruments and Markets. 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: 231 and 232. [3] (SBS)

ECON 260W. Seminar on Globalization. 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. No credit for students who earned credit for 257W in spring 2009. Prerequisite: 231 and either 150, 155, 253, or MATH 219. [3] (SBS)

ECON 262. History of Economic Thought. Evolution of economic ideas from the ancient Greeks to the contemporary world with attention to the seminal thoughts of Adam Smith, David Ricardo, J. S. Mill, Alfred Marshall, and J. M. Keynes. Prerequisite: 231 and 232. [3] (SBS)

ECON 263. International Trade. 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. No credit for students who have earned credit for 357. Prerequisite: 231. [3] (SBS)

ECON 264. International Finance. 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: 232. [3] (SBS)

ECON 265. Macroeconomic Models for Policy Analysis. 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: 232. [3] (SBS)

ECON 266. Topics in the Economic History of the U.S.. Analysis of major issues and debates in American economic history. Prerequisite: 231. [3] (US)

ECON 267. Poverty and Discrimination. Theories and empirical evidence concerning inequality, poverty, and discrimination, and their relationship to economic growth. Evaluation of anti-poverty and anti-discrimination policies. Prerequisite: 231 and either 150, 155, 253, or MATH 219. [3] (SBS)

ECON 268. Economics of Health. An examination of some of the economic aspects of the production, distribution, and organization of health care services, such as measuring output, structure of markets, demand for services, supply of services, pricing of services, cost of care, financing mechanisms, and their impact on the relevant markets. Prerequisite: 231. [3] (SBS)

ECON 271. Economic History of Europe. 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: 231. [3] (SBS)

ECON 273. Game Theory with Economic Applications. 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: 231. [3] (SBS)

ECON 274. Industrial Organization. The structure of contemporary industry and the forces that have shaped it, including manufacturing, trade, and transportation. The role of the large corporation in modern industrial organization. The relation of industrial structure to economic behavior and performance. Prerequisite: 231. [3] (SBS)

ECON 277W. Economics of Conflict. 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. Serves as repeat credit for students who completed 257W section 3 in spring 2010 and section 1 in fall 2010. Prerequisite: 231. [3] (SBS)

ECON 279. Urban Economics. Urban growth, development of suburbs, location of firms, housing markets, transportation, property taxes, and local government services. Offered on a graded basis only. Prerequisite: 231. [3] (SBS)

ECON 280. Seminar in Sports Economics. Issues and debates in sports economics. No credit for students who have earned credit for 270. Prerequisite 231 and either 150, 155, 253, or Math 219. [3] (SBS)

ECON 281. Economic Growth. 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. No credit for students who earned credit for 294 section 1 in spring 2013. Prerequisite: 231 and 232. [3] (SBS)

ECON 284. Topics in Econometrics. Emphasis on applications. May include generalized method of moments, empirical likelihood, resampling methods, and nonparametric techniques. Prerequisite: 253. [3] (SBS)

ECON 285. Law and Economics. 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: 231 and either 150, 155, 253, or MATH 219. [3] (SBS)

ECON 288. Development Economics. 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: 231 and either 150, 155, 253, or MATH 219. [3] (INT)

ECON 291a. Independent Study in Economics. 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: 231. [Variable credit: 1-3 each semester, or 1-6 for departmental honors candidates; maximum of 12 hours in 291a and 291b combined for departmental honors students; maximum of 6 hours in 291a and 291b combined for other students] (No AXLE credit)

ECON 291b. Independent Study in Economics. 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: 231. [Variable credit: 1-3 each semester, or 1-6 for departmental honors candidates; maximum of 12 hours in 291a and 291b combined for departmental honors students; maximum of 6 hours in 291a and 291b combined for other students] (No AXLE credit)

ECON 292a. Senior Thesis. Limited to and required of all candidates for departmental honors. Prerequisite: 231. [1-3] (No AXLE credit)

ECON 292b. Senior Thesis. Limited to and required of all candidates for departmental honors. Prerequisite: 231. [1-3] (No AXLE credit)

ECON 293. Selected Microeconomic Topics. 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: 231. [3] (No AXLE credit)

ECON 294. Selected Macroeconomic Topics. 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: 232. [3] (No AXLE credit)

ECON 295a. Honors Seminar. Discussion of selected topics and senior thesis research. Open only to seniors in the departmental honors program. Prerequisite: 231. [1] (No AXLE credit)

ECON 295b. Honors Seminar. Discussion of selected topics and senior thesis research. Open only to seniors in the departmental honors program. Prerequisite: 231. [1] (No AXLE credit)

English

ENGL 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

ENGL 100. Composition. For students who need to improve their writing. Emphasis on writing skills, with some analysis of modern nonfiction writing. [3] (No AXLE credit)

ENGL 102W. Literature and Analytical Thinking. 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)

ENGL 104W. Prose Fiction: Forms and Techniques. Close study of short stories and novels and written explication of these forms. [3] (HCA)

ENGL 105W. Drama: Forms and Techniques. 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)

ENGL 115F. First-Year Writing Seminar. Topics Vary. [3]

ENGL 116W. Introduction to Poetry. Close study and criticism of poems. The nature of poetry, and the process of literary explication. [3] (HCA)

ENGL 117W. Introduction to Literary Criticism. Selected critical approaches to literature. [3] (HCA)

ENGL 118W. Introduction to Literary and Cultural Analysis. 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)

ENGL 120W. Intermediate Composition. A writing course including the analysis of essays from a variety of disciplines. [3] (HCA)

ENGL 122. Beginning Fiction Workshop. Introduction to the art of writing prose fiction. [3] (HCA)

ENGL 123. Beginning Poetry Workshop. Introduction to the art of writing poetry. [3] (HCA)

ENGL 200. Intermediate Nonfiction Writing. Instruction in the forms and techniques of nonfiction writing. Admission by consent of instructor. May be repeated once for credit. [3] (HCA)

ENGL 201. Advanced Nonfiction Writing. 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 201] (HCA)

ENGL 202. Literature and the Craft of Writing. The forms and techniques of creative writing. Contemporary practices in fiction and poetry in historical context. [3] (HCA)

ENGL 204. Intermediate Fiction Workshop. 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 204] (HCA)

ENGL 205. Advanced Fiction Workshop. 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 205] (HCA)

ENGL 206. Intermediate Poetry Workshop. 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 206] (HCA)

ENGL 207. Advanced Poetry Workshop. 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 207] (HCA)

ENGL 208a. Representative British Writers. 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)

ENGL 208b. Representative British Writers. 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)

ENGL 209a. Shakespeare. 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. [3] (HCA)

ENGL 209b. Shakespeare. 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)

ENGL 210. Shakespeare: Representative Selections. 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 210W. [3] (HCA)

ENGL 210W. Shakespeare: Representative Selections. 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 210. [3] (HCA)

ENGL 211. Representative American Writers. 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 211W. [3] (US)

ENGL 211W. Representative American Writers. 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 211. [3] (US)

ENGL 212. Southern Literature. 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)

ENGL 213W. Literature of the American Civil War. 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)

ENGL 214a. Literature and Intellectual History. 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)

ENGL 214b. Literature and Intellectual History. The emergence of modern consciousness in the nineteenth and twentieth centuries. [3] (HCA)

ENGL 219. Anglo-Saxon Language and Literature. (Formerly 296a). The study of the Old English language. Selected historical and literary prose. Short heroic poems. Serves as repeat credit for students who completed 296a before fall 2012. [3] (HCA)

ENGL 220. Chaucer. Study of *The Canterbury Tales* and Chaucer's world. [3] (HCA)

ENGL 221. Medieval Literature. 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)

ENGL 230. The Eighteenth-Century English Novel. 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)

ENGL 231. The Nineteenth-Century English Novel. The study of selected novels of Dickens, Thackeray, Emily Brontë, George Eliot, George Meredith, Thomas Hardy, and other major novelists of the period. [3] (HCA)

ENGL 232a. Twentieth-Century American Novel. 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)

ENGL 232b. Twentieth-Century American Novel. 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)

ENGL 233. The Modern British Novel. 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)

ENGL 235. Contemporary British Literature. The novel, short story, and verse in Great Britain since World War II. [3] (HCA)

ENGL 236. World Literature, Classical. 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 236W. [3] (HCA)

ENGL 236W. World Literature, Classical. 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 236. [3] (HCA)

ENGL 237. World Literature, Modern. 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 237W. [3] (HCA)

ENGL 237W. World Literature, Modern. 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 237. [3] (HCA)

ENGL 240. The History of the English Language. The development of English syntax. History of the English vocabulary: word formation, borrowing, semantic change, and meter. [3] (HCA)

ENGL 241. Introduction to English Linguistics. Systematic study of present-day English sounds, words, sentences, and the contexts of language production. Contemporary varieties of English. [3] (HCA)

ENGL 242. Science Fiction. 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 242W. [3] (P)

ENGL 242W. Science Fiction. 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 242. [3] (P)

ENGL 243. Literature, Science, and Technology. 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 243W. [3] (P)

ENGL 243W. Literature, Science, and Technology. 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 243. [3] (P)

ENGL 244. Critical Theory. Major theoretical approaches that have shaped critical discourse, the practices of reading, and the relation of literature and culture. [3] (HCA)

ENGL 245. Literature and the Environment. 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)

ENGL 246. Feminist Theory. 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. [3] (P)

ENGL 247. Advanced Poetry. 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)

ENGL 248. Sixteenth Century. Prose and poetry of the sixteenth century. Emphasis on Spenser and his contemporaries. [3] (HCA)

ENGL 249. Seventeenth-Century Literature. 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)

ENGL 250. English Renaissance: The Drama. English drama, exclusive of Shakespeare, from 1550-1642: Marlowe, Jonson, Webster, and others. [3] (HCA)

ENGL 251. Milton. The early English poems; *Paradise Lost, Paradise Regained,* and *Samson Agonistes;* the major prose. [3] (HCA)

ENGL 252a. Restoration and the Eighteenth Century. 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)

ENGL 252b. Restoration and the Eighteenth Century. 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)

ENGL 254a. The Romantic Period. Prose and poetry of the Wordsworths, the Shelleys, Byron, Keats, and others. [3] (HCA)

ENGL 254b. The Romantic Period. Continuation of 254a. Prose and poetry of the Wordsworths, the Shelleys, Byron, Keats, and others. [3] (HCA)

ENGL 255. The Victorian Period. Works of Tennyson, Browning, Arnold, Hardy, and others. [3] (HCA)

ENGL 256. Modern British and American Poetry: Yeats to Auden. 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)

ENGL 258. Poetry Since World War II. Poets studied vary at discretion of instructor. Offered on a graded basis only. [3] (HCA)

ENGL 259. Digital Media. The history, theory, and design of digital media. Literature, video, film, online games, and other interactive narratives. No credit for students who have earned credit for 115F section 18. [3] (HCA)

ENGL 260. Nineteenth-Century American Women Writers. 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)

ENGL 262. Literature and Law. 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 262W. [3] (HCA)

ENGL 262W. Literature and Law. 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 262. [3] (HCA)

ENGL 263. African American Literature. 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 263W. [3] (US)

ENGL 263W. African American Literature. 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 263. [3] (US)

ENGL 264. Modern Irish Literature. 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)

ENGL 265. Film and Modernism. 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)

ENGL 266. Nineteenth-Century American Literature. 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)

ENGL 267. Desire in America: Literature, Cinema, and History. The influence of desire and repression in shaping American culture and character from the mid-nineteenth century to the present. [3] (US)

ENGL 268a. America on Film: Art and Ideology. American culture and character through film, film theory, and literature. [3] (US)

ENGL 268b. America on Film: Performance and Culture. Film performance in the construction of identity and gender, social meaning and narrative, public image and influence in America. [3] (US)

ENGL 269. Special Topics in Film. 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 269] (HCA)

ENGL 271. Caribbean Literature. 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)

ENGL 272. Movements in Literature. 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)

ENGL 272W. Movements in Literature. 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)

ENGL 273. Problems in Literature. 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)

ENGL 273W. Problems in Literature. 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)

ENGL 274. Major Figures in Literature. 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)

ENGL 274W. Major Figures in Literature. 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)

ENGL 275. Latino-American Literature. 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. [3] (P)

ENGL 276. Anglophone African Literature. 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. [3] (INT)

ENGL 277. Asian American Literature. 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)

ENGL 277W. Asian American Literature. 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)

ENGL 278. Colonial and Post-Colonial Literature. 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)

ENGL 278W. Colonial and Post-Colonial Literature. 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)

ENGL 279. Ethnic American Literature. 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)

ENGL 279W. Ethnic American Literature. 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)

ENGL 280. Workshop in English and History. (Also listed as History 291) 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)

ENGL 282. The Bible in Literature. 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)

ENGL 283. Jewish American Literature. Nineteenth century to the present. Issues of race, gender, ethnicity, immigration, and diaspora. Offered on a graded basis only. [3] (HCA)

ENGL 286a. Twentieth-Century Drama. 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)

ENGL 286b. Twentieth-Century Drama. 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)

ENGL 287. Special Topics in Investigative Writing in America. 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 287] (No AXLE credit)

ENGL 288. Special Topics in English and American Literature. 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)

ENGL 288W. Special Topics in English and American Literature. 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)

ENGL 289a. Independent Study. 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 289a rolls. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

ENGL 289b. Independent Study. 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 289b rolls. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

ENGL 290a. Honors Colloquium. 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)

ENGL 290b. Honors Thesis. Prerequisite: 290a. [3] (No AXLE credit)

ENGL 291. Special Topics in Creative Writing. Advanced instruction in creative writing in emerging modes and hybrid genres. [3] (HCA)

Environmental and Sustainability Studies

ENVS 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

ENVS 278. Seminar. The relationship between society and the environment. Sustainability, adaptation, climate science, and policy. Open only to junior and senior ENVS minors. [3] (SBS)

European Studies

EUS 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

EUS 201. European Society and Culture. An interdisciplinary survey of European society, culture, and politics since 1900. [3] (INT)

EUS 203. The Idea of Europe. 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)

EUS 208. Conspiracy Theories and Rumors in European and U.S. History. From 1600 to the present. Jesuits, Jews, and the Illuminati. The American and French Revolutions, McCarthyism, UFOs, and New World Order theories. No credit for students who completed EUS 240 section 1 in spring 2011. [3] (INT)

EUS 220. Religion and Politics in Modern Europe, 1648-Present. Toleration in the Enlightenment; the French Revolution; antisemitism; genocide; secularism and political Islam. [3] (INT)

EUS 240. Topics in European Studies. Topics of special interest on modern European culture or society. May be repeated for credit when topics vary. [3] (No AXLE credit)

EUS 250. Senior Tutorial. 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)

EUS 260. European Cities. 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)

EUS 289a. Independent Readings and/or Research. 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 289a and 289b combined] (No AXLE credit)

EUS 289b. Independent Readings and/or Research. 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 289a and 289b combined] (No AXLE credit)

Film Studies

FILM 105. Fundamentals of Film and Video Production. 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] (No AXLE credit)

FILM 125. Introduction to the Study of Film. Stylistic tendencies and narrative strategies, genres, and theoretical approaches. The course spans silent and sound eras and offers examples from both the Hollywood motion picture industry and diverse national cinemas. [3] (HCA)

FILM 175. Intermediate Filmmaking: Alternate Forms. Topics vary. Motion picture production and analysis of nonfiction and experimental forms. Development of conceptual and technical skills for making individual and collaborative film projects. 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. Offered on a graded basis only. Prerequisite: 105. [3] (No AXLE credit)

FILM 176. Intermediate Filmmaking: The Fiction Film. Topics vary. Motion picture production and analysis of the fiction form and cinematic storytelling. 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. Offered on a graded basis only. Prerequisite: 105. [3] (No AXLE credit)

FILM 201. Film Theory. Historical overview of the major analytical and critical approaches to the study of film as an art and cultural form, from classic film theory to contemporary perspectives. Prerequisite: 125. [3] (P)

FILM 211. History of World Cinema. 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. No credit for students who have earned credit for HART 272a or 272b. Prerequisite: 125. [3] (HCA)

FILM 227W. Screenwriting. Techniques of screenwriting. Serves as repeat credit for students who have completed THTR 227, 227W. [3] (HCA)

FILM 275W. Advanced Screenwriting. Story structure, character development, and dialogue. Serves as repeat credit for THTR 275 and 275W. Prerequisite: 227W or THTR 227W. [3] (HCA)

FILM 280a. Internship Readings and Research. 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 FILM 280a concurrently with FILM 280b. Normally a 2.90 grade point average, 6 hours of prior work in Film Studies, 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 Film Studies 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: 280b. [Variable credit: 1-6] (No AXLE credit)

FILM 280b. Internship Training. 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 FILM 280a concurrently with FILM 280b. Normally a 2.90 grade point average, 6 hours of prior work in Film Studies, 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 280a. Hours of 280b will not count toward the Film Studies Major or minor. Corequisite: 280a. [Variable credit: 1-9] (No AXLE credit)

FILM 288a. Special Topics in Film and Video Production. Topics vary. May be repeated more than once if there is no duplication of topic. Prerequisite: 105. [3] (No AXLE credit)

FILM 288b. Special Topics in the Study of Film. Topics vary. May be repeated more than once if there is no duplication of topic. Prerequisite: 125. [3] (No AXLE credit)

FILM 289a. Independent Study. Projects are arranged with individual professors and must be confirmed by the director of Film Studies 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 289a and 289b combined for majors.] (No AXLE credit)

FILM 289b. Independent Study. Projects are arranged with individual professors and must be confirmed by the director of Film Studies 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 289a and 289b combined for majors.] (No AXLE credit)

FILM 290a. Senior Seminar on Criticism, Theory, and History. Advanced reading and research in film. Offered on a graded basis only. Prerequisite: 125 and senior standing. [3] (No AXLE credit)

FILM 290b. Senior Seminar on Film Practice. Advanced independent filmmaking, portfolio assembly, and professionalism. Offered on a graded basis only. Prerequisite: 105 and senior standing. [3] (No AXLE credit)

FILM 299a. Senior Honors Research. Acquisition, reading, and analysis of primary source research material. Open only to senior honor students. [3] (No AXLE credit)

FILM 299b. Senior Honors Thesis. Writing a thesis under the supervision of the thesis advisor. Open only to senior honor students. Prerequisite: 299a. [3] (No AXLE credit)

Financial Economics

FNEC 140. Financial Accounting. Financial reporting and its relevance to the managerial environment. Financial statements from the perspectives of the preparer and the user. [3] (No AXLE credit)

FNEC 220. Managerial Accounting. Selected topics in managerial accounting. No credit for graduate students. Prerequisite: 140. [3] (SBS)

FNEC 240. Corporate Finance. Investment and financial decisions faced by firms. Theoretical basis of corporate decision-making. Various accounting documents and the alternative objectives of firms, their management, and their owners. Attributes of firms that affect market value. How investment decisions and methods used by firms to finance these investments affect firm value. Prerequisite: 140 and either ECON 150, 155, MATH 218, PSY 209, or PSY-PC 2101. [3] (SBS)

FNEC 261. Investment Analysis. Investment principles and practices. Security analysis and valuation. Portfolio theory. Current issues in the financial sector. Stock market simulation. Prerequisite: 240. [3] (SBS)

FNEC 275. Financial Management. Analysis of cases representing capital budgeting, forecasting cash flow, risk assessment, capital structure, mergers and acquisitions. Seminar. Prerequisite: 240. [3] (SBS)

FNEC 291a. Independent Study in Financial Economics. A program of independent readings in financial economics arranged in consultation with an adviser. Prerequisite: written permission of an instructor and the program director. No credit for graduate students. May be repeated for a total of 6 credits in 291a and 291b 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 FNEC 291a and 291b] (No AXLE credit)

FNEC 291b. Independent Study in Financial Economics. A program of independent readings in financial economics arranged in consultation with an adviser. Prerequisite: written permission of an instructor and the program director. No credit for graduate students. May be repeated for a total of 6 credits in 291a and 291b 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 FNEC 291a and 291b] (No AXLE credit)

French

FREN 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

FREN 101a. Elementary French. A communicative approach to reading, writing, listening, and speaking for students who have studied little or no French. No credit for students who have earned credit for a more advanced French language course. [5] (No AXLE credit)

FREN 101b. Elementary French. Continuation of 101a. A communicative approach to reading, writing, listening, and speaking for students who have studied little or no French. No credit for students who have earned credit for a more advanced French language course. [5] (INT)

FREN 102. Accelerated Elementary French. Communicative approach to reading, writing, listening, and speaking for students who have studied one to three years of French. Students who have earned credit for 101a will earn only three hours of credit for this course. Students who have earned credit for 101b will earn only three hours of credit for this course. No credit for students who have earned credit for 101a and 101b. No credit for students who have earned credit for a more advanced French language course. [5] (INT)

FREN 103. Intermediate French. Review of French grammar with emphasis on composition, reading, and conversation. Multicultural materials of the French-speaking world. No credit for students who have earned credit for a more advanced French language course. [5] (INT)

FREN 115F. First-Year Writing Seminar. Topics Vary. [3]

FREN 201W. French Composition and Grammar. Prerequisite: 103 or the equivalent. No graduate credit. No credit for students who have earned credit for a more advanced French language course. [3] (INT)

FREN 203. Phonetics. Methodical comparison of French and English sounds. Correct formation of French sounds; oral exercises and aural training. Prerequisite: 201W. [3] (INT)

FREN 204. French for Business. Specialized vocabulary of business terms, business letters, and exercises in comprehension and translation. Prerequisite: 201W. [3] (INT)

FREN 205. Medical French in Intercultural Contexts. Advanced conversation course dealing with medical issues in the Francophone world. Prerequisites: 201W. [3] (HCA)

FREN 209. Contemporary France. The culture of France today; social, economic, and political issues; literature and the arts. Offered at Vanderbilt in France. Prerequisite: 201W. [3] (INT)

FREN 210. French and Francophone Cinema. 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)

FREN 211. Texts and Contexts: Middle Ages to the Enlightenment. Literature and culture in historical contexts. Offered on a graded basis only. Prerequisite: 201W. [3] (HCA)

FREN 212. Texts and Contexts: Revolution to the Present. Literature and culture in historical contexts. Offered on a graded basis only. Prerequisite: 201W. [3] (HCA)

FREN 214. Advanced Conversational French. Emphasis on idiomatic usage and strategies for oral communication. Prerequisite: 201W. [3] (P)

FREN 215. La Provence. Geography, history, politics, architecture, and other cultural elements of Provence. Offered at Vanderbilt in France. Prerequisite: 201W. [3] (INT)

FREN 216. Cultural Study Tour. Preparation for excursions; discussions, readings, and presentations. Offered each summer in the Vanderbilt in France program. [1] (No AXLE credit)

FREN 218. The Contemporary Press and Media. Analysis of newspapers and magazines through the comparative study of national and international issues in the press of the French-speaking world. Includes television broadcasts. Prerequisite: 201W. Offered at Vanderbilt in France. [3] (P)

FREN 219. Contemporary Francophone Press. 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: 201W. [3] (HCA)

FREN 222. Introduction to Francophone Literature. 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: 201W. [3] (P)

FREN 224. Art and Literature of the Nineteenth Century. Romanticism, realism, and symbolism in French art and literature. Prerequisite: 201W. Offered at Vanderbilt in France. [3] (HCA)

FREN 225. Art and Literature of the Twentieth Century. Literary and artistic movements of the twentieth century in France. Prerequisite: 201W. Offered at Vanderbilt in France. [3] (HCA)

FREN 226. Advanced French Grammar. A systematic review with particular attention to morphology and syntax. Prerequisite: 201W. [3] (INT)

FREN 232. The *Querelles des femmes.* Debates around the status of medieval and Renaissance women, including the *Roman de la rose.* Alain Chartier, Christine de Pisan, the Des Roches, Montaigne, and Marie de Gourney. Prerequisite: 201W. [3] (P)

FREN 234. Medieval French Literature. Thematic exploration of chronicles, romance, poetry, and theatre of medieval France and the history and culture that surrounded these literary productions. Prerequisite: 201W. [3] (HCA)

FREN 237. The Early Modern Novel. Development of the novel as a genre in the seventeenth and eighteenth centuries; its changing social, intellectual, and political context. Prerequisite: 201W. [3] (HCA)

FREN 238. The Twentieth-Century Novel. The novel as a genre in the context of modernity and post modernity. Readings will focus on narrative techniques. Prerequisite: 201W. [3] (HCA)

FREN 239. The African Novel. 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: 201W. [3] (INT)

FREN 240. From Carnival to the "Carnivalesque". Carnival themes of transgression, the grotesque, feasting, and the "fool." Rabelais to contemporary works. Offered on a graded basis only. Prerequisite: 201W. [3] (P)

FREN 241. Emile Zola: From Naturalist Novels to Social Activism. 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: 201W. [3] (HCA)

FREN 251. Provence and the French Novel. Images of Provence, its people, and their customs in novels of the nineteenth and twentieth centuries by Dumas, Zola, Giono, Pagnol. Offered at Vanderbilt in France. Prerequisite: 201W. [3] (HCA)

FREN 252. Literature and Law. 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: 201W. [3] (P)

FREN 253. Literature of the Fantastic. The theme of the fantastic in nineteenth- and twentieth-century prose fiction. Critical analysis using psychological and psychoanalytic concepts. Prerequisite: 201W. [3] (HCA)

FREN 255. French Feminist Thought: Literary and Critical. Feminist themes in twentieth-century French literature and criticism. Authors include Beauvoir, Duras, Sarraute, Irigaray, Cixous. Prerequisite: 201W. [3] (P)

FREN 256. French Intellectual History. From Montaigne to Sartre and beyond. Critical discourses and major philosophical texts. Prerequisite: 201W. [3] (HCA)

FREN 258. The Struggle of Encounter: The Israeli-Palestinian Conflict in Literature. The literary encounter between the Jewish and Arab worlds through representations of the Israeli-Palestinian conflict. Prerequisite: 201W. [3] (P)

FREN 260. Enlightenment and Revolution. Major writers of the eighteenth century, including Montesquieu, Voltaire, Rousseau, Diderot; literature of the Revolution. [3] (HCA)

FREN 261. Age of Louis XIV. Literature and society in the reign of Louis XIV. Authors include Mme de Lafayette, La Fontaine, Molière, Pascal, Racine, and Mme de Sévigné. Prerequisite: 201W. [3] (HCA)

FREN 265. From Romanticism to Symbolism. Nineteenth-century literature through its major movements: Romanticism, Realism, Naturalism, and Symbolism. Prerequisite: 201W. [3] (HCA)

FREN 266. The Beat Generation's French Connection. The Beats' ties to Paris and to Quebec through French-Canadian Jack Kerouac. Antonin Artaud, Jean Genet, Arthur Rimbaud, and Marquis de Sade. No credit for students who earned credit for ENGL 288 section 3 in fall 2008 or ENGL 272 section 4 in spring 2010. Prerequisite: 201W. [3] (INT)

FREN 267. Twentieth-Century French Literature. Critical readings of representative works organized thematically with emphasis on their contextual and intertextual relationships. Prerequisite: 201W. [3] (HCA)

FREN 268. Understanding the Maghreb. The North African Maghreb, its history and society. Novels, essays, documentaries, newspaper articles, and films. Offered at Vanderbilt in France. Prerequisite: 201W. [3] (INT)

FREN 269. Francophone Literature and Film of the Maghreb. Literature, film, and their cultural context in Francophone North Africa. Offered at Vanderbilt in France. Prerequisite: 201W. [3] (SBS)

FREN 271. French and Italian Avant-garde. Italian authors writing in French in the international and experimental atmosphere of Paris before World War I. D'Annunzio's "Le martyre de Saint Sébastien" to Marinetti's "Manifeste du Futurisme." Offered on a graded basis only. Prerequisite: 201W. [3] (HCA)

FREN 272. Adultery and Transgressions in Literature. Comparative and historical study of texts from the Middle Ages through the twentieth century. Offered on a graded basis only. Prerequisite: 201W. [3] (P)

FREN 287a. Internship Readings and Research in France. Under faculty supervision, students intern in public or private organizations, and complete research and readings. Must be taken concurrently with 287b. Corequisite: 287b. [3] (No AXLE credit)

FREN 287b. Internship Training in France. 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 287a. Corequisite: 287a. [1] (No AXLE credit)

FREN 289. Independent Study. 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 289] (No AXLE credit)

FREN 294. Special Topics in Traditions. Topics vary. Prerequisite: 201W. 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)

FREN 295. Special Topics in Communications and Intersections. Topics vary. Prerequisite: 201W. 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)

FREN 299a. Senior Honors Thesis. [3] (No AXLE credit)

FREN 299b. Senior Honors Thesis. [3] (No AXLE credit)

German

GER 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

GER 101. Elementary German I. 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. [5] (No AXLE credit)

GER 102. Elementary German II. Continuation of 101. No credit for students who have earned credit for a more advanced German language course. Prerequisite: 101. [5] (INT)

GER 103. Intermediate German I. 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: 102. [3] (INT)

GER 104. Intermediate German II. 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: 103. [3] (INT)

GER 105. Intensive German in Regensburg. Grammatical and syntactic structures. Prerequisite: 103; corequisite: 106. [3] (No AXLE credit)

GER 106. Intensive German in Regensburg. Landeskunde and communicative skills. Prerequisite: 103; corequisite: 105. [3] (No AXLE credit)

GER 115F. First-Year Writing Seminar. Topics Vary. [3]

GER 172. Borders and Crossings: German Literature and Culture from Romanticism to the Present. 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)

GER 182. War on Screen. 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. [3] (HCA)

GER 201W. Introduction to German Studies. Literature, history, philosophy, and science of German-speaking countries presented through contemporary and multidisciplinary critical concepts and practices. Technology, theorizing mass culture, forms of cultural production, tradition and modernity. Reading and discussions in German. Prerequisite: 104. [3] (INT)

GER 213. Conversation and Composition: Current Events. Advanced German language course focusing on oral and writing proficiency. Topics on current events and societal developments. Prerequisite: 104. [3] (INT)

GER 214. Conversation and Composition: Contemporary Culture. Advanced German language course focusing on oral and writing proficiency. Topics on contemporary media and culture. Prerequisite: 104. [3] (INT)

GER 216. Business German. 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, policies, and laws in German-speaking countries; advertising and marketing strategies, letters, vitae, phone calls, and personal interviews. [3] (INT)

GER 220. Advanced Grammar. 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)

GER 221. German Culture and Literature. Introduction to major periods and genres of German cultural production from the middle ages to the present; overview of major social and political developments. Literary, philosophical, and other texts. Readings and discussions in German. [3] (INT)

GER 222. German Culture and Literature. Continuation of 221. Introduction to major periods and genres of German cultural production from the middle ages to the present; overview of major social and political developments. Literary, philosophical, and other texts. Readings and discussions in German. [3] (INT)

GER 223. From Language to Literature. 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: 213. [3] (HCA)

GER 235. German Romanticism. The contributions of Schlegel, Tieck, Novalis, Eichendorff, and others to literature, philosophy, and theory. Intellectual, social, and political currents. [3] (INT)

GER 237. Women and Modernity. 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)

GER 238. Interconnections of Arts and Science: Goethe and the Natural World. (Also listed as Physics 238) Mutual influences between the arts and science, as exemplified in Goethe's *Faust* and *Elective Infinities.* Readings in English, with option of German readings for German studies majors. Focal points: empirical investigation, philosophical interrogation, and scientific explanation. Taught in English. Prerequisite: completion of the Mathematics and Natural Science requirement of AXLE. [3] (P)

GER 241. The Racial Imagination. The complex and contradictory history of the idea of "race" as a scientific category. Study of medical, scientific, philosophical, anthropological, and literary texts. Taught in English. [3] (P)

GER 242. German Mystery Novels: From Romanticism to Kafka. Novels and novellas (1780-1920) dealing with the uncanny, unsettling, inexplicable, and the irrational. Exploring the dark side of the human psyche. Methods and theoretical concepts to explain the "fantastic." [3] (INT)

GER 243. The Aesthetics of Violence: Terror, Crime, and Dread in German Literature. 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)

GER 244. German Fairy Tales: From Brothers Grimm to Walt Disney. The German fairy tale tradition and its role in American culture. Taught in English. [3] (INT)

GER 245. Love and Friendship. 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)

GER 246. German Masterpieces in English Translation. Emphasis on the classical period and the present. Authors such as Goethe, Grass, Hesse, Kafka, T. Mann, and Schiller. No knowledge of German required. [3] (No AXLE credit)

GER 248. German Lyric Poetry–Form and Function. Lyric forms as a reaction to personal trauma, collective desire, scientific and technological advances, and social change since the Thirty Years' War. Love, loss, liberation. Students compose poems in imitation of classic examples of the folk song, ballad, sonnet. [3] (INT)

GER 262. German Literature of the Middle Ages. Examines sites of literary production (monasteries, courts, urban centers) and the evolution of literary language. [3] (INT)

GER 263. The Age of Goethe–Weimar 1775 to 1805. 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)

GER 264. Pleasures and Perils in Nineteenth-Century Theatre. The German drama and dramatic theory from Romanticism up to Naturalism with emphasis on selected works by Kleist, Büchner, Grillparer, and Hebbel. [3] (INT)

GER 265. Revolutionizing Twentieth-Century Theatre. German drama and dramatic theory from Naturalism to the present. Emphasis on Brecht and post-Brechtian drama. [3] (INT)

GER 266. Nineteenth-Century Prose. A study of representative works of the main literary trends from Romanticism to Naturalism. [3] (INT)

GER 267. The German Novel from Kafka to Grass. A study and interpretation of the main literary trends and major figures in twentieth-century narrative. [3] (INT)

GER 269. Writing under Censorship. An introduction to the main literary trends and authors of the former East Germany (1949-1989). [3] (HCA)

GER 270. German Cinema: Vampires, Victims, and Vamps. An analysis of representative German film with special emphasis on its sociocultural and historical context. Discussion will include pertinent theories of cinematography and cinematic narration. Taught in English. [3] (INT)

GER 271. Women at the Margins: German-Jewish Women Writers. 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)

GER 273. Nazi Cinema: The Manipulation of Mass Culture. 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. No knowledge of German required. [3] (P)

GER 274. Who Am I? German Autobiographies. Canonical and noncanonical texts from the nineteenth and twentieth centuries constructing cultural, religious, and gender identities. Taught in English. [3] (HCA)

GER 275. Art and Rebellion: Literary Experiment in the 1960s and 1970s. 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)

GER 276. Tales of Travel in Modern German Culture. 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: 201W. [3] (INT)

GER 278. Dreams in Literature. 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. Taught in English. [3] (HCA)

GER 280. Murder and Mayhem: the Sturm und Drang. Sturm und Drang literary and social movement (1767-1782). Literary genres and themes (e.g., infanticide, suicide, fratricide; primitivism, educational reform, utopian visions). Drawn from French (Diderot, Rousseau, Mercier) and English (Young, MacPherson, Shakespeare) impulses. The young Goethe and Schiller, Herder, Hamann, Lenz, L. Wagner. Taught in English. [3] (INT)

GER 289a. Independent Readings. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

GER 289b. Independent Readings. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

GER 293a. Internship Training. Under faculty supervision, students gain experience working in a variety of settings, such as civic, corporate, business, cultural, government, health, media, political, research, and social welfare organizations usually in the German-speaking countries. Background reading and/or research will be completed in German 293b and/or 293c concurrently with the completion of internship training, German 293a. A minimum of 3 hours of 293b or 293c must be completed, independent of hours taken in 293a. 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 beyond German 103, and

prior approval of the director of undergraduate studies of the student's plans are required. May be taken on a Pass/Fail basis only and must be taken concurrently with 293b and/or 293c. These hours may not be included in the minimum hours required in the German major. Corequisite: 293b and/or 293c. [1-9] (No AXLE credit)

GER 293b. Internship Research. Under faculty supervision, students gain experience working in a variety of settings, such as civic, corporate, business, cultural, government, health, media, political, research, and social welfare organizations usually in the German-speaking countries. Background reading and/or research will be completed in German 293b and/or 293c concurrently with the completion of internship training, German 293a. A minimum of 3 hours of 293b or 293c must be completed, independent of hours taken in 293a. 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 beyond German 103, and prior approval of the director of undergraduate studies of the student's plans are required. Corequisite: 293a. [3-6] (No AXLE Credit)

GER 293c. Internship Readings. Under faculty supervision, students gain experience working in a variety of settings, such as civic, corporate, business, cultural, government, health, media, political, research, and social welfare organizations usually in the German-speaking countries. Background reading and/or research will be completed in German 293b and/or 293c concurrently with the completion of internship training, German 293a. A minimum of 3 hours of 293b or 293c must be completed, independent of hours taken in 293a. 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 beyond German 103, and prior approval of the director of undergraduate studies of the student's plans are required. Corequisite: 293a. [3-6] (No AXLE credit)

GER 294a. Selected Topics. May be repeated for a total of 12 credits in 294a and 294b 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 294a and 294b] (No AXLE credit)

GER 294b. Selected Topics. May be repeated for a total of 12 credits in 294a and 294b 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 294a and 294b] (No AXLE credit)

Greek

GRK 201. Beginning Greek I. Elements of classical Greek. Reading of simplified texts from authors of the fifth and fourth centuries B.C. No credit for students who have earned credit for a more advanced Greek language course. [4] (No AXLE credit)

GRK 202. Beginning Greek II. Continuation of 201. Completion of the elements of classical Greek through 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. [4] (INT)

GRK 203. Intermediate Greek I: Classical and Koiné Greek. Review of Greek grammar, and reading from classical and biblical texts. Prerequisite: 202. No credit for students who have earned credit for a more advanced Greek language course. [3] (INT)

GRK 204. Intermediate Greek II: Homer's *Iliad.* Selected reading and interpretation; history and literary characteristics of the Homeric epic; practice in reading of meter. Prerequisite: 203. No credit for students who have earned credit for a more advanced Greek language course. [3] (INT)

GRK 210. The Greek Orators. Classical Athenian orators, with a focus on Lysias and Demosthenes. Historical context, rhetorical technique, and prose style. Prerequisite: 204. [3] (HCA)

GRK 212. The Greek Historians. 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: 203. [3] (HCA)

GRK 215. The Greek Tragedians. 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: 204. [3] (HCA)

GRK 216. Readings in Plato and Aristotle. 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: 204. [3] (HCA)

GRK 218. Greek Lyric Poetry. The Greek melic, elegiac, and iambic traditions, with an introduction to the Greek dialects and special emphasis on Archilochus, Tyrtaeus, Alcaeus, and Sappho. Prerequisite: 204. [3] (HCA)

GRK 240. Early Christian Writers. Writings of Greek Christians, from the New Testament to critical works and letters by the Cappadocian fathers. Historical and intellectual context. Rhetoric and style. The Roman East. Prerequisite: 204. [3] (HCA)

GRK 289. Independent Study. Designed for majors wanting to familiarize themselves with works and authors not covered in the regular curriculum. Prerequisite: 6 hours above 204. 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 289] (No AXLE credit)

GRK 294. Special Topics in Greek Literature. 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)

Hebrew

HEBR 111a. Elementary Hebrew. 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)

HEBR 111b. Elementary Hebrew. Continuation of 111a. 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: 111a. [4] (INT)

HEBR 113a. Intermediate Hebrew. 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: 111b. [3] (INT)

HEBR 113b. Intermediate Hebrew. Continuation of 113a. 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: 113a. [3] (INT)

HEBR 201. Advanced Hebrew Grammar. 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: 113b. [3] (INT)

HEBR 202W. Advanced Hebrew Composition. Development of writing skills through the study of short stories, poems, articles, television, and web materials. Prerequisite: 201. [3] (INT)

HEBR 289a. Independent Study in Modern Hebrew. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

HEBR 289b. Independent Study in Modern Hebrew. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

History

HIST 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

HIST 105. East Asia since 1800. 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)

HIST 106. Premodern China. 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)

HIST 107. China from Empire to the People's Republic. 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)

HIST 108. Premodern Japan. Japanese civilization from ancient times to the Meiji Restoration (1868). Connections between culture and politics; relations with neighboring regions in East Asia. [3] (INT)

HIST 109. Modern Japan. 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)

HIST 115F. First-Year Writing Seminar. Topics Vary. [3]

HIST 116. Modern South Asia. 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)

HIST 119. A History of Islam. 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)

HIST 120. The Arab Spring. 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)

HIST 127. Sub-Saharan Africa: 1400-1800. Pre-colonial history of West and Central Africa. The rise of early empires; cultural history of major groups, the spread of Islam; the Atlantic exchange, development of the Atlantic plantation complex, and the slave trade. [3] (INT)

HIST 128. Africa since 1800: The Revolutionary Years. 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)

HIST 135. Western Civilization to 1700. Judeo-Christian and Greco-Roman foundations to the beginning of the eighteenth century. [3] (INT)

HIST 136. Western Civilization since 1700. European history from the age of the Enlightenment to the present day. [3] (INT)

HIST 137. Colonial Latin America. 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)

HIST 138. Modern Latin America. 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)

HIST 139. America to 1776: Discovery to Revolution. 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)

HIST 140. U.S. 1776-1877: Revolution to Civil War and Reconstruction. 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. No credit for students who earned credit for 170 prior to fall 2008. [3] (US)

HIST 141. U.S. 1877-1945: Reconstruction through World War II. 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)

HIST 142. U.S. Post-1945: Cold War to the Present. Political, international, social, and cultural currents that have shaped contemporary America. [3] (US)

HIST 144. African American History since 1877. 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)

HIST 147. History of Geographical Exploration. 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)

HIST 148. The Darwinian Revolution. 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)

HIST 150. History of Modern Sciences and Society. 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)

HIST 151. The Scientific Revolution. 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)

HIST 153. Superhuman Civilization. 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)

HIST 158. Crime and Punishment in Early Modern Europe 1400-1800 CE. 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)

HIST 160. European Economic History, 1000-1700. 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)

HIST 165. The Foreign Expansion of American Banking. The movement of American banking institutions abroad from 1893 to the present. Foreign loans and sovereign debt, dollar diplomacy and imperialism, interna-

tional branch banking and trade financing, money laundering and off-shore accounting, political economy and globalization. [3] (US)

HIST 166. American Enterprise. 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)

HIST 169. Sea Power in History. An introductory survey of the U.S. Navy's role in foreign and defense policies from the American Revolution to the present. The course also examines the broad principles, concepts, and elements of sea power throughout history. Key points will include technological advances, interservice relations, strategies, and governmental policies pertaining to sea power. This course is designed to meet the NROTC requirement. Does not count toward history major. No credit for students who have earned credit for NS 131. [3] (US)

HIST 169c. Evolution of Warfare. 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)

HIST 169d. Amphibious Warfare. Broad aspects of warfare and their interactions with amphibious activities. Influence of previous campaigns upon current military policies and practices. Case studies. Repeat credit for students who have completed NS 2411. [3] (No AXLE credit)

HIST 170. Western Military History to 1815. War in culture, politics, and society; technology, the Military Revolution and state-formation. [3] (INT)

HIST 172. World War II. Origins and causes of the global conflict; the six years of military campaigns; politics and diplomacy of warmaking; 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)

HIST 173. The U.S. and the Cold War. U.S. history, 1945-1991. Emphasis on foreign policy and competition with Soviet Union. Impact of Cold War on American society. [3] (US)

HIST 174. The U.S. and the Vietnam War. 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)

HIST 176. History of Christian Traditions. 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)

HIST 183. Sexuality and Gender in the Western Tradition to 1700. Politics, war, and masculinity; Christianity and sexuality; changing ideas about gender roles and sexual practices. [3] (P)

HIST 184. Sexuality and Gender in the Western Tradition since 1700. Modern masculinity, femininity, and gender roles; origins of identity politics and changing sexual norms; contemporary feminist issues. [3] (P)

HIST 187. Pornography and Prostitution in History. 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)

HIST 188a. The Body in Modern Japanese Culture. The roles of human bodies and body image in the making of modern Japan. Bodies as a means of understanding the past and the present. Individuals, society, culture, and physical environment. Historical and literary writings and film from the twentieth century. [3] (INT)

HIST 200W. The History Workshop. Introduction to the "historian's craft." Reconstructing the past using primary documents, diaries, letters, memoirs, and declassified government papers. Methods of historical research and reasoning through individual projects. Open only to history majors. [3] (SBS)

HIST 202. Themes in Modern Chinese History, 1966-1989. The current state of culture, society, government, and the military in present-day China. Twentieth-century Chinese history. The Cultural Revolution to Tiananmen Square. [3] (INT)

HIST 203. Chinese Thought. Confucianism and Philosophical Daoism. The Confucian Four Books, the Daodejing (Laozi), Zhuangzi, and Neo-Confucianism. [3] (INT)

HIST 204. Crisis Simulation in East Asia. 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)

HIST 205. Play and Pleasure in Early Modern Japan. 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)

HIST 206. Post-WWII Japan. Japanese culture and society from the end of WWII to the present. The impact of war experiences on postwar Japan. The political nature of cultural production. [3] (INT)

HIST 209. Russia: Old Regime to Revolution. 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)

HIST 210. Russia: The U.S.S.R. and Afterward. 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)

HIST 211a. The Mughal World. 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)

HIST 211b. Religion and Politics in South Asia. From pre-modern times to the present. The formation of religious identities in South Asia, including India, Pakistan, and Bangladesh. Religious and political identity during British colonialism. Post-1947 South Asian politics and debates on religious freedom and conflict. Offered on a graded basis only. [3] (INT)

HIST 212a. India and the Indian Ocean. 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)

HIST 213. Muhammad and Early Islam. 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)

HIST 216. Medicine in Islam. 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. No credit for students who have earned credit for 115F section 21. [3] (INT)

HIST 217. Islam and the Crusades. 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)

HIST 219. Last Empire of Islam. 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)

HIST 222. Medieval and Renaissance Italy, 1000-1700. 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)

HIST 223. Medieval Europe, 1000-1350. Economic expansion and the formation of national states; the medieval Church and the revival of learning in the twelfth and thirteenth centuries. [3] (INT)

HIST 225. Reformation Europe. 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)

HIST 226. Revolutionary Europe, 1789-1815. 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)

HIST 227. Nineteenth-Century Europe. Major political, social, economic, and cultural developments from 1815 to 1914. [3] (INT)

HIST 228. Europe, 1900-1945. Political, socioeconomic, cultural, and colonial history of Europe from 1914 to the fall of Hitler. [3] (INT)

HIST 229. Europe since 1945. 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)

HIST 230. Twentieth-Century Germany. 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)

HIST 231. France: Renaissance to Revolution. 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)

HIST 234. Modern France. The fall of Napoleon in 1815 to the present. Emphasis on politics. Major economic, social, cultural, and intellectual developments. [3] (INT)

HIST 238. Shakespeare's Histories and History. Readings from a variety of plays by Shakespeare and his contemporaries. Significant political and cultural issues from the 1590s in early English history. No credit for students who earned credit for 294 section 2 in fall 2008. [3] (HCA)

HIST 239a. The Real Tudors. 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. [3] (HCA)

HIST 241. Victorian England. Cultural values, liberal reform; urbanization; women and gender; imperialism. [3] (INT)

HIST 243W. The English Atlantic World, 1500-1688. English overseas expansion, including conquest of Ireland, exploration and conquest of the New World. Formation of imperial and American cultures and of racism, the slave trade, Indian relations, and migration from the British Isles. [3] (US)

HIST 245. Reform, Crisis, and Independence in Latin America, 1700-1820. Reorganization of the Spanish and Portuguese empires; maturation of transatlantic societies; and revolutions for independence. [3] (INT)

HIST 246. Colonial Mexico. The cultural history of major pre-Columbian groups; the conquest and settlement by the Spaniards; colonial society through independence in 1821. [3] (INT)

HIST 247. Modern Mexico. From independence in 1821 to the present. Political instability of the nineteenth century; the Porfirian dictatorship and the revolution of 1910; evolution and modernization of Mexico. [3] (INT)

HIST 248. Central America. 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)

HIST 249. Brazilian Civilization. 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)

HIST 251. Reform and Revolution in Latin America. 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)

HIST 253a. Latin America and the United States. 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)

HIST 254a. Race and Nation in Latin America. 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. Serves as repeat credit for students who completed 294 section 2 in fall 2010 or section 1 in fall 2009. [3] (INT)

HIST 257. Caribbean History, 1492-1983. Amerindian society; age of encounter; imperial contest; slavery and abolition. U.S. influence; independence movements; cultural movements; invasion of Grenada. [3] (INT)

HIST 258. American Indian History before 1850. Indian nations' interaction with each other and with European colonies. Resistance and adaptation to colonialism. Early development of United States Indian policy. [3] (US)

HIST 259. American Indian History since 1850. 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)

HIST 260. North American Colonial History. European colonization before 1763. Development of North American colonies from the origins of Spanish colonization to the conclusion of the Seven Years' War. Contests among European empires, their interaction with Native American societies, and their enslavement of African peoples. [3] (US)

HIST 261. The Founding Generation. 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)

HIST 262. The Old South. 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)

HIST 263. The New South. 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)

HIST 264. Appalachia. 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)

HIST 268. Black New York. The African American and African Diaspora experience in New York City from 1625 to 1990, and from the Bronx to Brooklyn. Slavery and free blacks, the New York Conspiracy, the Harlem Renaissance and the Black Arts Movement, Bebop and Hip Hop. [3] (INT)

HIST 269. The Civil Rights Movement. 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. [3] (US)

HIST 270. The U.S. and the World. From the winning of independence to the Great Depression. Relationships among foreign policy, ideology, domestic politics, and social and economic change. [3] (US)

HIST 271. The U.S. as a World Power. 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)

HIST 272a. Globalizing American History, 1877-1929. Immigration; Diasporic social movements; transnational social reform campaigns; military, colonial, and corporate empire-building; the expansion of missionary activity; and America's participation in a world war. [3] (US)

HIST 272b. Globalizing American History, 1940-2010. 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)

HIST 272c. Race, Power, and Modernity. 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)

HIST 272d. American Masculinities. 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)

HIST 275a. American Intellectual History since 1865. 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)

HIST 280. Modern Medicine. Scientific, social, and cultural factors influencing the rise of modern medicine. Europe and the U.S., 1750 to the present. [3] (P)

HIST 281. Women, Health, and Sexuality. 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)

HIST 283. Medicine, Culture, and the Body. (Also listed as History 283) Concepts of the human body from historical and cross-cultural perspectives. Exploration of experiences, representations, and medical theories of the body in birth, death, health, and illness in Western and non-Western societies. Comparison of methodologies of anthropology and history. Repeat credit for students who have completed HIST 283. [3] (P)

HIST 284a. Epidemics in History. How infectious diseases shape history. European and American responses to disease from the medieval Black Death to HIV/AIDS. Offered on a graded basis only. [3] (P)

HIST 284b. Health and the African American Experience. 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)

HIST 285W. Science, Technology, and Modernity. 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)

HIST 286b. U.S. and Caribbean Encounters. The social, political, and cultural history of United States-Caribbean encounters from the Haitian Revolution to the Grenada invasion. Empire, expansion, and American exceptionalism; finance, debt, and banking. Military strategy and small wars; gender, sexuality, and bio-politics; racial ideology and racial science; sovereignty and international law; African American and Afro-Caribbean interaction. Serves as repeat credit for students who completed 294 section 2 in spring 2011. [3] (INT)

HIST 286c. Tokyo: History and Image. 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)

HIST 286d. Pirates of the Caribbean. 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)

HIST 286e. Christianity in China. Encounters between Western missionaries and Chinese society. Growth of an indigenous church. Translation of the Bible into Chinese. Debates about papal authority. Anti-Christian movements. Relationship between Christianity and Communism in China today. [3] (INT)

HIST 286g. Weimar Germany: Modernism and Modernity, 1918-1933. Culture and politics. Mass politics, mass media, economic crisis, and social tensions. Architecture, film, theater, painting, and philosophy. [3] (HCA)

HIST 287a. History, Trauma, and Memory. Relationships between personal experiences and history. Historical writing, literature, and film from the 20th and 21st centuries. [3] (HCA)

HIST 287b. History of New Orleans. 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)

HIST 287c. Cities of Europe and the Middle East. 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)

HIST 287d. Immigration, Race, and Nationality: The American Experience. The immigrant experience from 1776 to the present. The journeys of Irish, Jews, Asians, Latinos, and West Indians, among others. Americanization and the role of race in that process; immigration and anti-immigrant sentiment in the making of American nationality. [3] (US)

HIST 287e. The Federalist Papers. 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)

HIST 287g. Making of Modern Paris. 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)

HIST 288a. Religion, Culture, and Commerce: The World Economy in Historical Perspective. 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)

HIST 288b. Poverty, Economy, and Society in Sub-Saharan Africa. 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. No credit for students who earned credit for 295 section 3 in spring 2007 or 294 section 1 in fall 2008. [3] (INT)

HIST 288c. Muslims, Christians, and Jews in Medieval Spain. 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. No credit for students who have earned credit for JS 115F section 1. [3] (INT)

HIST 288d. Images of India. 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)

HIST 288e. The Art of Empire. 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)

HIST 288g. Culture of the Sixties in Europe and the U.S. Youth, rock 'n roll, sexual attitudes, black power, counterculture, and conservative reaction. Cultural revolution or myth. [3] (INT)

HIST 288W. Blacks and Money. Social and cultural history of money, markets, and exchange in the black world in the twentieth century. Reparations and debt; wealth and class; black appropriations of Marxist thought and black endorsements of capitalism. Gifts and primitive money; informal economies and black markets. [3] (P)

HIST 289a. Revolutionary England, 1603-1710. 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. [3] (HCA)

HIST 289d. Religion and the Occult in Early Modern Europe. 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. No credit for students who earned credit for 295 section 1 in fall 2011. [3] (HCA)

HIST 291. Workshop in English and History. (Also listed as English 280) 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)

HIST 293a. Internship Training. 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 293a, 3 hours in 293b, and 3 hours in 293c. (2) Part-time: 6-9 hours total, including 3-6 hours in 293a and 3 hours in either 293b or 293c. 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 293b and/or 293c. These hours may not be included in the minimum hours required for the history major. Corequisite: 293b and/or 293c. [3-9] (No AXLE credit)

HIST 293b. Internship Research. 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 293a, 3 hours in 293b, and 3 hours in 293c. (2) Part-time: 6-9 hours total, including 3-6 hours in 293a and 3 hours in either 293b or 293c. 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: 293a. [3] (No AXLE credit)

HIST 293c. Internship Readings. 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 293a, 3 hours in 293b, and 3 hours in 293c. (2) Part-time: 6-9 hours total, including 3-6 hours in 293a and 3 hours in either 293b or 293c. 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: 293a. [3] (No AXLE credit)

HIST 294. Selected Topics in History. 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)

HIST 295. Majors Seminar. 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: 200W. 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 295] (No AXLE credit)

HIST 296. Independent Study. 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 296] (No AXLE credit)

HIST 297. Junior Honors Seminar in History. 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)

HIST 298a. Senior Honors Research Seminar. 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)

HIST 298b. Senior Honors Research Seminar. Continuation of 298a. Offered on a graded basis only. Open only to seniors in the departmental honors program. Prerequisite: 298a. Corequisite: 299. [3] (No AXLE credit)

HIST 299. Senior Honors Thesis. 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: 298a. Corequisite 298b. [3] (No AXLE credit)

History of Art

HART 110. History of Western Art I. 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. (HCA) [3]

HART 111. History of Western Art II. 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. (HCA) [3]

HART 112. History of Western Architecture. 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. [3] (HCA)

HART 115F. First-Year Writing Seminar. Topics Vary. [3]

HART 120. Arts of East Asia. A survey of sculpture, painting, and architecture in China, Japan, and Korea. Historical, religious, philosophical, and cultural background. [3] (INT)

HART 122. History of Asian Architecture. 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)

HART 125. Arts of South and Southeast Asia. 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)

HART 206. Portraits in Late Antiquity. 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)

HART 207. Religious Art of the Roman Empire, 100-500 CE. Visual art reflecting religious beliefs and practices. Greco-Roman cults, early Christianity, and Rabbinical Judaism. [3] (HCA)

HART 208. Art and Empire from Constantine to Justinian. An interdisciplinary study of Roman social, political, religious, and art historical developments in the fourth through sixth centuries CE. [3] (HCA)

HART 210. Early Christian and Byzantine Art. The development of architecture, sculpture, painting, and the minor arts from the third through eleventh centuries. [3] (HCA)

HART 211. Medieval Art. The development of architecture, sculpture, painting, and the minor arts in Europe from the eleventh through the fifteenth centuries. [3] (HCA)

HART 213W. The Court of Burgundy. 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)

HART 214. Fifteenth-Century Northern European Art. 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. No credit for students who have earned credit for 212. [3] (HCA)

HART 216. Raphael and the Renaissance. 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)

HART 217. Early Renaissance Florence. 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. No credit for students who have earned credit for 218. Repeat credit for students who have completed 217W. [3] (HCA)

HART 217W. Early Renaissance Florence. 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. No credit for students who have earned credit for 218. Repeat credit for students who have completed 217. [3] (HCA)

HART 218. Italian Art to 1500. 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. No credit for students who have earned credit for 217 or 217W. [3] (HCA)

HART 219. Italian Renaissance Art after 1500. 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)

HART 220. Michelangelo's Life and Works. 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 220W. [3] (HCA)

HART 220W. Michelangelo's Life and Works. 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 220. [3] (HCA)

HART 221. Seventeenth-Century Art. European painting, sculpture, architecture, and graphic arts. Caravaggio, Bernini, Velazquez, Rubens, and Rembrandt. [3] (HCA)

HART 222. British Art: Tudor to Victorian. Sixteenth to nineteenth century survey of the arts of England and related British culture, from Van Dyck and Hogarth to Blake and the pre-Raphaelites. Social and political context, literary influences, and media development. [3] (HCA)

HART 223. Twentieth-Century British Art. Painting, sculpture, installation, film and video, and performance in the context of national culture and political history. [3] (HCA)

HART 224. Eighteenth-Century Art. 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)

HART 226. Neoclassicism and Romanticism. 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)

HART 229. Nineteenth-Century Architecture: Theory and Practice. 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)

HART 230. Nineteenth-Century European Art. 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)

HART 231. Twentieth-Century European Art. Painting, sculpture, and architecture; stressing a social-historical approach to the study of style. [3] (HCA)

HART 232. Modern Architecture. 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)

HART 233. History of Photography. 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)

HART 234. Twentieth-Century Sculpture. Definitions, materials, movements, theories, and related practices, including architecture. [3] (HCA)

HART 235. Modern Art and Architecture in Paris. Painting, sculpture, photography, and architecture. Maymester course; first two weeks at Vanderbilt, last two weeks in Paris. [3] (HCA)

HART 237. History of Spanish Art up to the Seventeenth Century. Includes one class meeting per week in the Prado or the Archaeological Museum. Offered in the Vanderbilt in Spain program. [3] (HCA)

HART 238. History of Spanish Art from the Seventeenth Century to the Present. Relations to European tendencies of the same period, includes one class meeting per week in the Prado Museum. Offered in the Vanderbilt in Spain program. [3] (HCA)

HART 240. American Art to 1865. Painting and sculpture of the United States from Colonial times to 1865 with an emphasis on iconography, social history, race, and gender. [3] (US)

HART 241. American Art 1865 to 1945. 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)

HART 242. Art since 1945. 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)

HART 246. Religion and politics in South and Southeast Asian Art. 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)

HART 247. Himalayan Art: Art of the Divine Abode. 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)

HART 248. The South Asian Temple. From its inception to the present. Morphological and stylistic analysis. Anthropological and ethnographical approach to temples as living communal entities. [3] (INT)

HART 249. The Arts of China during the Liao-Song Period. 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)

HART 251. East Asian Architecture and Gardens. 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)

HART 252. Arts of China. Artistic production from the Neolithic period through the Qing dynasty in relation to religious and cultural contexts. [3] (HCA)

HART 253. Arts of Japan. Artistic production from the Neolithic through Meiji periods in relation to religious and cultural contexts. [3] (HCA)

HART 255. Greek Art and Architecture. 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. No credit for students who have earned credit for 256, 257, 258, or CLAS 204 or 205. [3] (HCA)

HART 260W. Ancient Landscapes. 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)

HART 262W. Gender and Sexuality in Greek Art. 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)

HART 264. Greek Sculpture. Style, materials, and techniques ca. 900-31 B.C. Sculptors' craft and their reasons for the creation of both free-standing and architectural sculpture. Serves as repeat credit for students who have completed CLAS 216. [3] (HCA)

HART 265. Greek Vases and Society. 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)

HART 266. Cities of the Roman East. Provincial centers, sanctuaries, and monuments from Greece to Arabia. Major centers and case studies of public and private commissions. Architectural reflections of Romanization and resistance; local and imperial patronage; patrimony and memory; borderland architecture. [3] (HCA)

HART 268. Art and Architecture of Ancient Egypt. Art, architecture, and culture of Egypt from the fourth millennium through the Old, Middle, and New Kingdoms. Sculpture, wall painting, architecture, and material culture. Serves as repeat credit for students who have completed CLAS 217. [3] (HCA)

HART 270. History of Western Urbanism. Urban form and planning from antiquity to the present. The integration of architecture and landscape. Diachronic surveys. Case studies, including Nashville. [3] (P)

HART 280W. Exhibiting Historical Art. 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. [3] (HCA)

HART 288. Selected Topics. 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 288] (No AXLE credit)

HART 289. Independent Research. 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)

HART 290. Directed Study. 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 290] (No AXLE credit)

HART 293a. Internship Research. 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 293a, which includes background research, done concurrently with a one-semester internship program (293b), 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: 293b. [Variable credit: 1-3] (No AXLE credit).

HART 293b. Internship Training. 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 293a, which includes background research, done concurrently with a one-semester internship program (293b), 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 293a. Will not count as part of the minimum hours for the History of Art major or minor. Corequisite: 293a. [Variable credit: 1-9] (No AXLE credit).

HART 295. Advanced Seminar in History of Art. An undergraduate seminar involving advanced reading, research, and writing in a particular area of art history. Limited to juniors and seniors with preference to history of art 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. [3; maximum of 6 credits total for all semesters of HART 295] (HCA)

HART 298. Honors Research. 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 298] (No AXLE credit)

HART 299. Honors Thesis. 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: 298. May be repeated for a total of 6 credits. [1-6; maximum of 6 credits total for all semesters of HART 299] (No AXLE credit)

Honors

HONS 181. College Honors Seminar in the Humanities and Creative Arts. 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)

HONS 182. College Perspectives Honors Seminar. 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)

HONS 183. College Honors Seminar in Behavioral and Social Sciences. 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)

HONS 184. College Honors Seminar in History and Culture of the United States. 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)

HONS 185. College Honors Seminar in Mathematics and Natural Science. 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)

HONS 186. College Honors Seminar in International Cultures. 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)

Humanities

HUM 161. Selected Topics. Topics Vary. May be repeated more than once if there is no duplication of topic. [3] (No AXLE credit)

Interdisciplinary Studies

INDS 270a. Global Citizenship and Service. 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 270b. [3] (INT)

INDS 270b. Global Community Service. 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: 270a. [1-3] (No AXLE credit)

INDS 270c. Seminar in Global Citizenship and Service. 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 270a and 270b. Prerequisite: 270b. [3] (INT)

INDS 280a. Interdisciplinary Internship. Internship credit for work approved by the director of internships and chair of the Curriculum Committee. A written scholarly project must be produced in the internship. Must be taken P/F. Maximum of 3 credit hours in 280a, 280b, 280c, and 280d combined. [1] (No AXLE credit)

INDS 280b. Interdisciplinary Internship. Internship credit for work approved by the director of internships and chair of the Curriculum Committee. A written scholarly project must be produced in the internship. Course must be taken P/F. Maximum of 3 credit hours in 280a, 280b, 280c, and 280d combined. [1] (No AXLE credit)

INDS 280c. Interdisciplinary Internship. Internship credit for work approved by the director of internships and chair of the Curriculum Committee. A written scholarly project must be produced in the internship. Course must be taken P/F. Maximum of 3 credit hours in 280a, 280b, 280c, and 280d combined. [1] (No AXLE credit)

INDS 280d. Interdisciplinary Internship. Internship credit for summer work approved by the director of internships and chair of the Curriculum Committee. 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 280a, 280b, 280c, and 280d combined. [1] (No AXLE credit)

Italian

ITA 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

ITA 101a. Elementary Italian. Elementary reading, writing, speaking, and listening, with emphasis on practical usage. Introduction to simple literary language. Classes meet five times weekly. Open to students who have studied little or no Italian before. No credit for students who have earned credit for a more advanced Italian language course. [5] (No AXLE credit)

ITA 101b. Elementary Italian. Continuation of 101a. Elementary reading, writing, speaking, and listening, with emphasis on practical usage. No credit for students who have earned credit for a more advanced Italian language course. Prerequisite: Italian 101a. [5] (INT)

ITA 102. Intensive Elementary Italian. Accelerated approach to reading, writing, speaking, and listening. Emphasis on practical usage. Open to students with knowledge of another Romance language and to students planning to study in Italy. Students who have earned credit for 101a will earn only three hours of credit for this course. Students who have earned credit for 101b will earn only three hours of credit for this course. No credit for students who have earned credit for both 101a and 101b. No credit for students who have earned credit for a more advanced Italian language course. [5] (INT)

ITA 115F. First-Year Writing Seminar. Topics Vary. [3]

ITA 200. Italian Journeys. 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: 101b or 102. [3] (INT)

ITA 201W. Grammar and Composition. Syntax, idiomatic expressions, and current usage. No credit for students who have earned credit for a more advanced Italian language course. Prerequisite: 200. [3] (INT)

ITA 214. Conversation. Development of oral proficiency through analysis and discussion of films, magazine articles, and contemporary art and literature. Prerequisite: 200. [3] (INT)

ITA 220. Introduction to Italian Literature. Critical reading of major works of Italian literature from the beginning to the present. Prerequisite: 201W. [3] (HCA)

ITA 230. Italian Civilization. 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)

ITA 231. Dante's *Divine Comedy.* Dante's language and philosophical tenets through the study of style, characters, and themes. Taught in English. [3] (HCA)

ITA 232. Literature from the Middle Ages to the Renaissance. 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: 201W. [3] (HCA)

ITA 233. Baroque, Illuminismo, and Romanticism in Italy. Literature of the seventeenth through nineteenth centuries, with particular reference to the influence of European literatures in Italy. Prerequisite: 201W. [3] (HCA)

ITA 235. Twentieth-Century Literature: Beauty and Chaos. Poetry and prose in social and historical context. Prerequisite: 201W. [3] (HCA)

ITA 236. Gangsters, Lovers, Madonnas, and Mistresses. 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)

ITA 238. City Fictions. 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: 200. [3] (P)

ITA 239. Topics in Contemporary Italian Civilization. Short stories, historical documents, and articles from the press. Prerequisite: 201W. [3] (No AXLE credit)

ITA 240. Classic Italian Cinema. 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)

ITA 241. Contemporary Italian Cinema. 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)

ITA 242. Contemporary Italian Society and Culture. Capitalism and modernization, immigration, and multiculturalism. Racism, youth culture, gender, sexuality, and feminism. Changing definitions of family. Regionalism, entertainment, and sport. Prerequisite: 200. [3] (P)

ITA 250. *Famous Women* by Boccaccio. Boccaccio's *Famous Women,* the first collection of female biographies. Evolution of the literary representation of women from classical times to the Renaissance. Contemporary criticism and theory. Taught in English. [3] (HCA)

ITA 289. Independent Study. 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 289] (No AXLE credit)

ITA 294a. Special Topics in Italian Literature. 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: 201W. [3] (No AXLE credit)

Japanese

JAPN 200a. Introductory Modern Japanese I. 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 201 or a more advanced Japanese language course. [3] (No AXLE credit)

JAPN 200b. Introductory Modern Japanese II. Continuation of 200a. No credit for students who have earned credit for 201 or a more advanced Japanese language course. Prerequisite: 200a. [3] (No AXLE credit)

JAPN 201. Beginning Modern Japanese I. Acquisition of oral-aural skills and basic grammar. Introduction to reading and writing Japanese syllabaries and Chinese characters. Two hours of lecture and three hours of drill per week. No credit for students who have earned credit for 200b or a more advanced Japanese language course. [5] (No AXLE credit)

JAPN 202. Beginning Modern Japanese II. Continuation of 201. 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: 200b or 201. [5] (INT)

JAPN 211. Second-Year Modern Japanese I. Development of conversational skills and linguistic competence. Syntax, writing, and reading. 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: 202. [5] (INT)

JAPN 212. Second-Year Modern Japanese II. Continuation of 211. 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: 211. [5] (INT)

JAPN 232. Japanese through Manga. Reading and analysis of Japanese comic books. Focus on acquiring Japanese language skills and knowledge of contemporary Japanese popular culture. Prerequisite: 212. [2] (No AXLE Credit)

JAPN 241. Third-Year Japanese I. 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: 212. [3] (INT)

JAPN 242. Third-Year Japanese II. Continuation of 241. No credit for students who have earned credit for a more advanced Japanese language course. Prerequisite: 241. [3] (INT)

JAPN 251. Fourth-Year Japanese I. Reading, writing, and discussion in authentic Japanese cultural, literary, and historical texts. No credit for students who have earned credit for a more advanced Japanese language course. Prerequisite: 242. [3] (INT)

JAPN 252. Fourth-Year Japanese II. Continuation of 251. Prerequisite: 251. [3] (INT)

JAPN 289a. Independent Study. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

JAPN 289b. Independent Study. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

Jewish Studies

JS 115F. First-Year Writing Seminar. Topics Vary. [3]

JS 120. Islam and the Jews. Muslim-Jewish relations from the beginning of Islam to the present. Mohammed and the Jews, Jewish roles in Islamic cultures, status of Muslims in contemporary Israel, recent Jewish exodus from Muslim lands. [3] (INT)

JS 122. Classical Judaism: Jews in Antiquity. 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)

JS 123. Jews in the Medieval World. 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)

JS 124. Perspectives in Modern Jewish History. 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. [3] (P)

JS 125. Modern Israel. Internal dynamics, debates, and conflicts within Israeli society. Political, social, and cultural transformations from the 1980s to the present. [3] (INT)

JS 136W. Imagining the Alien: Jewish Science Fiction. 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)

JS 137W. Black-Jewish Relations in Post-War American Literature and Culture. 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)

JS 138. Jewish Humor. 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 138W. [3] (US)

JS 138W. Jewish Humor. 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 138. [3] (US)

JS 139W. American Jewish Music. From the late 19th century to the present. Distinctiveness of Jewish songs. Contributions of Jewish songwriters to American music. [3] (US)

JS 155. American Jewish Life. Diversity, individualism, and change in Jewish life. Food and culture, memory and identity, gender and assimilation, Reform-Conservative-Orthodox culture wars. [3] (SBS)

JS 156. The Holocaust. The history of the Holocaust: its origins, development, and its legacy in the context of Germany and European history. [3] (INT)

JS 158. The Jewish Diaspora. 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)

JS 162W. American Southern Jews in Life and Literature. 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)

JS 180. Introduction to Jewish Studies. 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 180W. [3] (INT)

JS 180W. Introduction to Jewish Studies. 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 180. [3] (INT)

JS 219. The New Testament in Its Jewish Contexts. 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)

JS 222. Jews in Egypt. 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)

JS 233. Issues in Rabbinic Literature. 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)

JS 234. Reading Across Boundaries: Jewish and Non-Jewish Texts. 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)

JS 235W. Hebrew Literature in Translation. Origins and development in Eastern Europe from the nineteenth century to postmodern Israeli literature. The relationship between historical transformations and literary form. [3] (INT)

JS 237. Coming of Age in Jewish Literature and Film. 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 237W. [3] (INT)

JS 237W. Coming of Age in Jewish Literature and Film. 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 237. [3] (INT)

JS 238. Jewish Language and Paleography. 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)

JS 240. Modern Jewish Thought. 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)

JS 244. Freud and Jewish Identity. Analysis of rhetoric and themes in selected writings of Sigmund Freud and his times, development of assimilation and of anti-Semitic repudiation. [3] (SBS)

JS 245. Major Themes in Jewish Studies. The study of Jews, Judaism, and Jewish culture. History of Jewish Studies, core perspectives, key methodologies, critical debates. Classical literature, current trends. [3] (P)

JS 248. Jewish Storytelling. 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 248W. [3] (HCA)

JS 248W. Jewish Storytelling. 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 248. [3] (HCA)

JS 249. Jewish Philosophy after Auschwitz. 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)

JS 250. Is G-d Guilty? The Problem of Evil in Judaism. Origin, nature, and representations of evil from Scripture through the Hasidic masters. Reflections of modern thinkers. [3] (HCA)

JS 252. Social Movements in Modern Jewish Life. 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)

JS 253W. Witnesses Who Were Not There: Literature of the Children of Holocaust Survivors. Fiction and non-fiction produced by children of Holocaust survivors. [3] (HCA)

JS 255. Zionism: Politics, Religion, and Ethnicity. Tensions among religion, nationalism, and political activism. Translations of Messianism into a secular program. Criticism from within and without the movement. [3] (HCA)

JS 256. Power and Diplomacy in the Modern Middle East. 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)

JS 257. Topics in Ancient and Medieval Jewish History. 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)

JS 258. Topics in Modern Jewish History. 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)

JS 280. Contemporary Jewish Issues. Projects will vary according to the instructor. Service to community will be integral part of course. [3] (No AXLE credit)

JS 288a. Internship Training. 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 288b. Corequisite: 288b. [Variable credit: 1-3] (No AXLE credit)

JS 288b. Internship Research. 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 288a. Corequisite: 288a. [3] (No AXLE credit)

JS 289. Independent Study. 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 289] (No AXLE credit)

JS 290. Directed Readings. Advanced readings and research on a selected topic done under the supervision of a faculty mentor. [3] (No AXLE credit)

JS 294. Special Topics. 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)

JS 295. Senior Seminar. Advanced reading and research in a particular area of Jewish studies. [3] (No AXLE credit)

JS 296. Senior Project in Jewish Studies. Readings and independent research. Prerequisite: senior standing. [3] (No AXLE credit)

JS 298a. Senior Honors Research Seminar. Presentation and discussion of progress being made on honors theses. Open only to senior departmental honors students. [3] (No AXLE credit)

JS 298b. Senior Honors Research Seminar. Presentation and discussion of progress being made on honors theses. Open only to senior departmental honors students. [3] (No AXLE credit)

Latin

LAT 100. Intensive Elementary Latin. The equivalent of Latin 101 and 102. 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 102. No credit for students who have earned credit for 101, 102, or a more advanced Latin language course. [5] (INT)

LAT 101. Beginning Latin I. Designed to enable the student to understand elementary Latin, whether written or oral. Some practice in speaking and writing in Latin. No credit for students who have earned credit for a more advanced Latin language course. [4] (No AXLE credit)

LAT 102. Beginning Latin II. Continuation of 101, and transition to literary Latin. Emphasis on the comprehension of texts. No credit for students who have earned credit for a more advanced Latin language course. [4] (INT)

LAT 103. Intermediate Latin: Prose. 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 104. [3] (INT)

LAT 104. Intermediate Latin: Poetry. Selected reading from the major Latin poets. No credit for students who have earned credit for a more advanced Latin language course. [3] (INT)

LAT 201. Catullus. Reading and interpretation of Catullus' poems; aesthetic, political, and rhetorical contexts; fundamentals of Latin meter. Prerequisite: 104. [3] (HCA)

LAT 202. Ovid. Reading and interpretation of selections from the *Metamorphoses* or other works of Ovid. Prerequisite: 104. [3] (HCA)

LAT 203. The Lyric Poetry of Horace. Reading and interpretation of Horace's *Epodes* and *Odes;* relation to the Greco-Roman lyric tradition and to Augustan politics. Prerequisite: 104. [3] (HCA)

LAT 204. Latin Elegy. 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: 104. [3] (HCA)

LAT 205. Latin Letters. The literary letters of Seneca and Pliny, with a brief introduction to the personal correspondence of Cicero and the letters discovered at Vindolanda. Prerequisite: 104. [3] (HCA)

LAT 206. Cicero and the Humanistic Tradition. 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: 104. [3] (HCA)

LAT 212. Roman Comedy. Reading of selected comedies of Plautus and Terence: study of the form of Roman comedy and its relation to the Greek New Comedy. Prerequisite: 104. [3] (HCA)

LAT 215. The Roman Historians. 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: 104. [3] (HCA)

LAT 216. Tacitus. 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: 104. [3] (HCA)

LAT 217. Suetonius. 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: 104. [3] (HCA)

LAT 218. The Writings of Caesar. Selections from *The Civil War* and *The Gallic War.* Literary style and historical context. Prerequisite: 104. [3] (HCA)

LAT 220. Vergil: *The Aeneid.* An intensive study of the entire poem, in the context of the epic tradition. Prerequisite: 104. [3] (HCA)

LAT 260. Early Christian Writers. Selections from the writings of Latin Christians, from the account of Perpetua's martyrdom to the Confessions of Augustine. Prerequisite: 104. [3] (HCA)

LAT 264. Roman Satire. The satires of Horace and Juvenal; the origins of Roman satire; history and conventions of the genre; background reading in other Roman satirists. Prerequisite: 104. [3] (HCA)

LAT 267. Neronian Writers. 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: 104. [3] (HCA)

LAT 268. Lucretius: *De Rerum Natura.* 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: 104. [3] (HCA)

LAT 289. Independent Study. Designed for majors wanting to familiarize themselves with works or authors not covered in the regular curriculum. Prerequisite: 6 hours above 104. 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 289] (No AXLE credit)

LAT 294. Special Topics in Latin Literature. 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)

Latin American Studies

LAS 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

LAS 115F. First-Year Writing Seminar. Topics Vary. [3]

LAS 201. Introduction to Latin America. 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)

LAS 202. Introduction to Brazil. 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)

LAS 231. Music of Protest and Social Change in Latin America. Politics of musical culture. Music both as a marker of sociopolitical change and as an agent of political transformation. [3] (INT)

LAS 260. Latin America, Latinos, and the United States. 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)

LAS 280a. Internship Readings and Research. 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 280a concurrently with the completion of internship training, Latin American Studies 280b. A minimum of 3 hours of 280a must be completed, independent of hours taken in 280b. Students may earn up to 6 hours of 280a 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: 280b. [3-6] (No AXLE credit)

LAS 280b. Internship Training. 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 280a concurrently with the completion of internship training, Latin American Studies 280b. A minimum of 3 hours of 280a must be completed, independent of hours taken in 280b. Students may earn up to 6 hours of 280a 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 280a. Hours of 280b cannot be included in the minimum number of hours counted toward the Latin American Studies major or minor. Corequisite: 280a. [1-9] (No AXLE credit)

LAS 289a. Independent Study. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

LAS 289b. Independent Study. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

LAS 290. Interdisciplinary Research Methods. Principal research methods and sources necessary for the study of Latin America in the social sciences and humanities. [3] (No AXLE credit)

LAS 294a. Special Topics in Latin American Studies. 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)

Latino and Latina Studies

LATS 201. Introduction to Latino and Latina Studies. 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)

LATS 250. Latino and Latina Business and Entrepreneurship. 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)

LATS 280. Latino and Latina Studies Seminar. 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)

Managerial Studies

MGRL 185. Negotiation. 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)

MGRL 190. Principles of Marketing. Creating customer value and building profitable customer relationships. Understanding customer needs, defining target markets, and crafting value propositions. Case studies. [3] (SBS)

MGRL 191. Advanced Marketing. 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: 190. [3] (SBS)

MGRL 192. Creative Advertising. Examination and practical application of the creative process in advertising; the creation of marketing campaigns, including the integration of various media. Prerequisite: 190. [3] (SBS)

MGRL 194. Fundamentals of Management. Entrepreneurship, strategy, marketing, operations, and finance. For-profit, non-profit, and social enterprise organizations. [3] (SBS)

MGRL 195. Entrepreneurial Challenge. 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: 194. [3] (SBS)

MGRL 196. Entrepreneurship: The Business Planning Process. Functional areas within companies, business plans at various stages of company development and critique of business plans for investment suitability. Prerequisites: 194 and FNEC 140. [3] (SBS)

MGRL 198. Corporate Strategy. Examination of the issues and challenges facing corporate management. Responsibilities and interrelationships of functional areas including marketing, finance, operations, and R&D. Industry, competitor, and customer analysis. Design and implementation of corporate strategy. Informational and control systems. Interpersonal skills for effective teamwork. Prerequisite: FNEC 140. [3] (SBS)

MGRL 235. Selected Topics in Managerial Studies. 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)

MGRL 245. Independent Study in Managerial Studies. 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)

MGRL 290. Directed Study. 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. [3] (No AXLE credit)

Mathematics

MATH 115F. First-Year Writing Seminar. Topics Vary. [3]

MATH 127a. Probability and Statistical Inference. 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)

MATH 127b. Probability and Statistical Inference. For students not planning to major in science, engineering, or mathematics. Linear regression, correlation, hypothesis testing. Confidence intervals, sampling distributions, statistical inference. Prerequisite: 127a. [3] (MNS)

MATH 133. Pre-calculus Mathematics. Inequalities, functions and graphs, trigonometric identities, theory of equations. Designed for students who plan to take either 150a-150b or 155a-155b but need a stronger background in algebra and trigonometry. [3] (No AXLE credit)

MATH 140. Survey of Calculus. 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. Students who have earned credit for 150a or 155a will earn only one credit for this course. Students who have earned credit for 150b will earn only three credits for this course. [4] (MNS)

MATH 150a. Single-Variable Calculus I. 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. No credit for students who have earned credit for 140. Students who have earned credit for 155a will earn only one credit for this course. [3] (MNS)

MATH 150b. Single-Variable Calculus II. 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 140 or 155b will earn only two credits for this course. Students who have earned credit for 155a will earn only one credit for this course. Prerequisite: 150a. [3] (MNS)

MATH 155a. Accelerated Single-Variable Calculus I. Functions, limits, differentiation of algebraic functions, integration, applications including extrema problems, areas, volumes, centroids, and work. Students who have earned credit for 140 will earn only one credit for this course. Students who have earned credit for 150a or 150b will earn only two credits for this course. [4] (MNS)

MATH 155b. Accelerated Single-Variable Calculus II. Differentiation and integration of transcendental functions, applications, methods of integration, coordinate geometry, polar coordinates, infinite series. Students who have earned credit for 150b will earn only three credits for this course. Students who have earned credit for 170 will earn only one credit for this course. Prerequisite: 155a or 150b. [4] (MNS)

MATH 170. Single-Variable Calculus III. Analytic geometry, parametric equations, polar coordinates, infinite series, Taylor series. Repeat credit for students who completed 170a prior to fall 2008. No credit for students who have earned credit for 155b. Prerequisite: 150b. [3] (MNS)

MATH 175. Multivariable Calculus. Vectors, curves, and surfaces in space. Functions of several variables, partial derivatives, multiple integrals. Vector integral calculus, including line and surface integrals. Repeat credit for students who completed 170b prior to fall 2008. No credit for students who have earned credit for 205b. Students who have earned credit for 205a will earn only one credit for this course. Prerequisite: 155b or 170. [3] (MNS)

MATH 194. Methods of Linear Algebra. Vectors and matrix operations. Linear transformations and fundamental properties of finite dimensional vector spaces. Numerical solutions of systems of linear equations. Eigenvalues and eigenvectors. Selected basic elements of linear programming. No credit for students who have earned credit for 196, 204, or 205b. Students who have earned credit for 205a will earn only two credits for this course. Prerequisite or corequisite: 175. [3] (MNS)

MATH 196. Differential Equations with Linear Algebra. 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. No credit for students who have earned credit for 194, 198, or 208. Prerequisite or corequisite: 175. [4] (No AXLE credit)

MATH 198. Methods of Ordinary Differential Equations. Linear first-order differential equations, applications, higher order linear differential equations, complementary and particular solutions, applications, Laplace transform methods, series solutions, numerical techniques. No credit for students who have earned credit for 196 or 208. Prerequisite: 175 or 205b. [3] (MNS)

MATH 200. Intensive Problem Solving and Exposition. Intended to develop widely-applicable mathematical skills. Basic principles such as induction, the pigeonhole principle, symmetry, parity, and generating functions. Prerequisite: 175 or 205a. [3] (MNS)

MATH 204. Linear Algebra. Algebra of matrices, real and complex vector spaces, linear transformations, and systems of linear equations. Eigenvalues, eigenvectors, Cayley-Hamilton theorem, inner product spaces, and orthonormal bases. Hermitian matrices. Designed primarily for mathematics majors. No credit for students who have earned credit for 194 or 205b. Students who have earned credit for 205a will earn only two credits for this course. Prerequisite or corequisite: 175. [3] (MNS)

MATH 205a. Multivariable Calculus and Linear Algebra. 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. No credit for students who have earned credit for 205b, 175, 194, or 204. Open only to first-year students with a test score of 5 on the Calculus-BC Advanced Placement examination. [4] (MNS)

MATH 205b. Multivariable Calculus and Linear Algebra. Continuation of 205a. 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. No credit for students who have earned credit for 175, 194, or 204. Prerequisite: 205a and first-year standing. [4] (MNS)

MATH 208. Ordinary Differential Equations. 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. No credit for students who have earned credit for 196 or 198. Prerequisite: concurrent enrollment in 205b or prior credit for either 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 215. Discrete Mathematics. 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: 194, 204, or 205b. [3] (MNS)

MATH 216. Probability and Statistics for Engineering. 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. No credit for students who have earned credit for 218. Prerequisite: 175 or 205b. [3] (No AXLE credit)

MATH 218. Introduction to Probability and Mathematical Statistics. Discrete and continuous probability models, mathematical expectation, joint densities. Laws of large numbers, point estimation, confidence intervals. Hypothesis testing, nonparametric techniques, applications. Students taking 218 are encouraged to take 218L concurrently. No credit for students who have earned credit for 216. Prerequisite: 175 or 205b. [3] (MNS)

MATH 218L. Statistics Laboratory. Applications of the theory developed in 218. 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: 216 or 218. [1] (No AXLE credit)

MATH 219. Introduction to Applied Statistics. A brief review of basic applied statistics followed by a development of the analysis of variance as a technique for interpreting experimental data. The generalized likelihood ratio principle, completely randomized designs, nested designs, orthogonal contrasts, multiple comparisons, randomized block designs, Latin squares, factorial designs, 2n designs, fractional factorials, confounding, introduction to response surface methodology. Applications will be emphasized. Prerequisite: 216 or 218. [3] (MNS)

MATH 221. Theory of Numbers. 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: 194, 204, or 205a. [3] (MNS)

MATH 223. Abstract Algebra. Fundamental properties of integers and polynomials. Elementary properties of groups, rings, integral domains, fields, and lattices. Prerequisite: 194, 204, or 205b. [3] (MNS)

MATH 226. Introduction to Numerical Mathematics. 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 194, 204, or 205b, and either 196, 198, or 208. [3] (MNS)

MATH 229. Advanced Engineering Mathematics. 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. No credit for students who have earned credit for 259. Prerequisite: 196, 198, or 208. [3] (MNS)

MATH 234. Introduction to Partial Differential Equations. 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 194, 204, or 205b, and either 196, 198, or 208. [3] (MNS)

MATH 240. Transformation Geometry. 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: 194, 204, or 205b. [3] (MNS)

MATH 242. Introduction to Topology. Open sets, closed sets, continuity, compactness, and connectivity. Subspaces, product spaces, and quotient spaces. Knot theory, topology of surfaces, and applications. Prerequisite: 194, 204, or 205b. [3] (MNS)

MATH 243. Differentiable Manifolds. Manifolds in n-dimensional Euclidean space, smooth maps; inverse and implicit function theorems. Regular value theorem, immersions and submersions, Sard's theorem, and transversality. Degree of a map; winding numbers and the Fundamental Theorem of Algebra; intersection theory modulo 2. Prerequisite: 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 246a. Introduction to Actuarial Mathematics. Applications of calculus and probability to actuarial science. The foundations of financial mathematics, including the theory of interest. Prerequisite: 175 or 205b. Prerequisite or corequisite: 216, 218, or 247. [3] (MNS)

MATH 246b. Actuarial Models. 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: 246a and either 216, 218, or 247. [3] (MNS)

MATH 247. Probability. 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, applications. Except for students with extremely strong backgrounds, 218 should be taken prior to 247. Prerequisite: 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 248. Mathematical Statistics. 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 218L. Prerequisite: 247. [3] (MNS)

MATH 249a. Financial Stochastic Processes. The theory of stochastic processes and applications to financial economics. Brownian motion; martingales; Itô's Lemma; stochastic integration. Monte Carlo simulations with variance reduction techniques. Applications include discrete-time option pricing and delta hedging. Prerequisite: 246a and either 216, 218, or 247. [3] (MNS)

MATH 249b. Evaluation of Actuarial Models. 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: 246b, 248, and 249a. [3] (MNS)

MATH 250. Introduction to Mathematical Logic. Development of the first order predicate calculus and fundamental metamathematical notions. Prerequisite: 194, 204, or 205b. [3] (MNS)

MATH 252. History of Mathematics. 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: 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 253. Error-Correcting Codes and Cryptography. 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: 194, 204, or 205b. [3] (MNS)

MATH 256. Mathematical Modeling in Economics. 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: 175 or 205b. [3] (MNS)

MATH 259. Advanced Calculus. Advanced treatment of multivariable calculus. Differentiation of functions of several variables, including inverse and implicit function theorems. Vector differential calculus. Integration of functions of several variables. Vector integral calculus, including Stokes' theorem. No credit for students who have earned credit for 229. Prerequisite: 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 260. Introduction to Analysis. 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: 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 261. Complex Variables. 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: 175 or 205b. [3] (MNS)

MATH 262. Mathematical Modeling in Biology and Medicine. 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 194, 204, or 205b, and either 196, 198, or 208. [3] (MNS)

MATH 267. Selected Topics for Undergraduates. Topics vary. May be repeated for a total of 12 credits in 267 and 297 combined if there is no duplication in topic. Students may enroll in more than one section of this course each semester. Prerequisite: 205b or both 175 and either 194 or 204. [1-3; maximum of 12 credits total for all semesters of MATH 267 and 297 combined] (No AXLE credit)

MATH 269. Senior Thesis. 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)

MATH 270. Differential Topology. Manifolds; submanifolds; tangent and vector bundles. Vector fields and flows, Lie brackets, distributions, and the Frobenius theorem. Sard's theorem; transversality and intersection theory; degree theory and applications. Tensors and differential forms; the exterior derivative; Stokes' theorem and integration; de Rham cohomology. Prerequisite: either 194, 204, or 205b, and either 242, 243, or 272a. [3] (MNS)

MATH 272a. Topology. Connectedness, compactness, countability, and separation axioms. Complete metric spaces. Function spaces. Prerequisite: 205b, 242, or 243. [3] (MNS)

MATH 272b. Topology. The fundamental group and covering spaces. Topology of surfaces. Simplicial complexes and homology theory. Homotopy theory. Prerequisite: 272a. [3] (MNS)

MATH 274. Combinatorics. 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 215 prior to 274. Prerequisite: 194, 204, or 205b. [3] (MNS)

MATH 275. Graph Theory. 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 215 prior to 275. [3] (MNS)

MATH 280. Set Theory. 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: 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 283a. Modern Algebra. Group theory through Sylow theorems and fundamental theorem of finitely generated abelian groups. Prerequisite: 223. [3] (MNS)

MATH 283b. Modern Algebra. 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: 283a. [3] (MNS)

MATH 284. Lattice Theory and the Theory of Ordered Sets. 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: 223. [3] (MNS)

MATH 286. Numerical Analysis. 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: 226. [3] (MNS)

MATH 287. Nonlinear Optimization. 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: 205b or both 175 and either 194 or 204. [3] (MNS)

MATH 288. Linear Optimization. An introduction to 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. Possible additional topics include the primal-dual algorithm, cutting planes, or branch-and-bound. Applications to networks, management, engineering, and physical sciences. Prerequisite: either 194, 204, or 205b, and either CS 101 or 103. [3] (MNS)

MATH 292. Methods of Mathematical Physics. 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 194, 204, or 205b, and either 196, 198, or 208. [3] (MNS)

MATH 294. Partial Differential Equations. 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 194, 204, or 205b, and either 196, 198, or 208. [3] (MNS)

MATH 297. Selected Topics. Topics of special interest. May be repeated for a total of 12 credits in 267 and 297 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 credits total for all semesters of MATH 267 and 297] (No AXLE credit)

MATH 298. Independent Study. 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)

Medicine, Health, and Society

MHS 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

MHS 100. Introduction to Medicine, Health and Society. Health, illness and medical authority. Case studies on violence, epidemics, biomedical advances, health disparities, gender, and global health. [3] (No AXLE credit)

MHS 115F. First-Year Writing Seminar. Topics Vary. [3]

MHS 170. Politics of Health. Sociocultural analysis of the conflicts, definitions, inequalities, and structures of power that influence health. [3] (P)

MHS 180. Racial and Ethnic Health Disparities. 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)

MHS 201. Fundamental Issues in Medicine, Health, and Society. A multidisciplinary introduction to the study of medicine, health, and society, drawing on the perspectives of anthropology, economics, history, political science and policy studies, philosophy, religious studies, and sociology. Guest lectures by representatives of the various disciplines. [3] (P)

MHS 202. Perspectives on Global Public Health. Global issues in public health. Focus on ecological approaches. [3] (P)

MHS 203. U.S. Public Health Ethics and Policy. Critical perspectives on ethical and policy issues in U.S. public health. [3] (P)

MHS 204. Global Health and Social Justice. 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. No credit for students who earned credit for 290 section 4 in fall 2012. [3] (P)

MHS 205W. Medicine and Literature. Narrative analysis, and other humanistic, interpretative practices of relevance to medicine and health. [3] (HCA)

MHS 208. American Medicine and the World. 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. No credit for students who earned credit for 290 section 3 in fall 2012. [3] (P)

MHS 210. Health Social Movements. 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. No credit for students who earned credit for 290 section 1 in fall 2012. [3] (P)

MHS 212. War and the Body. 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. No credit for students who earned credit for 290 section 2 in fall 2012. [3] (P)

MHS 220. Narrative and Medicine: Stories of Illness and the Doctor-Patient Relationship. Use of classical and contemporary illness narratives to understand the doctor-patient relationship. Focus on patient stories in clinical settings. [3] (HCA)

MHS 225. Death and Dying in America. 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)

MHS 231. Chinese Society and Medicine. 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. Serves as repeat credit for students who completed 290 section 3 in fall 2010 and section 1 in fall 2011. [3] (SBS)

MHS 232. Masculinity and Men's Health. 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. No credit for students who earned credit for 290 section 5 in fall 2012. [3] (P)

MHS 234. Men's Health Research. 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. No credit for students who earned credit for 290 section 14 in spring 2013. [3] (SBS)

MHS 235. Community Health Research. Working with community mentors to identify unmet health needs. How non-profit organizations enhance community health. Repeat credit for students who completed 290 section 1 in fall 2009 and for students who completed 290 section 3 in fall 2008. [3] (No AXLE credit)

MHS 236. HIV/AIDS in the Global Community. Medical, social, political, economic, and public policy dimensions of HIV/AIDS. Prevention and treatment strategies, social stigma, and discrimination. Repeat credit for students who completed 290 section 2 in fall 2009 and for students who completed 290 section 5 in fall 2008. [3] (P)

MHS 237. Caring for Vulnerable Populations. Humanitarian aid and the risks and responsibilities in providing for vulnerable populations. Differences between acute and chronic crises. Geopolitical, cultural, clinical, and practical factors. Serves as repeat credit for students who completed 290 section 3 in spring 2010 and for students who completed 290 section 4 in either spring 2009 or spring 2008. [3] (No AXLE credit)

MHS 240. Social Capital and Health. 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. Serves as repeat credit for students who completed 290 section 5 in spring 2010 and section 1 in spring 2011. [3] (SBS)

MHS 244. Medicine, Law, and Society. 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. Serves as repeat credit for students who completed 290 section 3 in fall 2010, 290 section 2 in spring 2010, or 290 section 2 in spring 2009. [3] (SBS)

MHS 245. Medicine, Technology, and Society. Tensions between art and science in medicine. The effect of science and technology on the doctor-patient relationship. Social and ethical issues raised by new biomedical developments. Repeat credit for students who completed 295 section 1 in fall 2009. [3] (No AXLE credit)

MHS 246. Medicine, Religion, and Spirituality. 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. Serves as repeat credit for students who completed 295 section 2 in either fall 2009 or fall 2008. [3] (No AXLE credit)

MHS 248. Medical Humanities. 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. Serves as repeat credit for students who completed 295 section 2 in either spring 2010 or spring 2009. [3] (HCA)

MHS 250. Autism. Multiple manifestations. Impact, questions, and debates. Familial, educational, sociological, legal, and medical contexts. [3] (SBS)

MHS 252. Psychiatry, Culture, and Globalization. Cross-cultural analysis of mental illness; the emergence of cultural psychiatry; and the globalization of biopsychiatry and neuroscience. No credit for students who earned credit for 295 section 2 in fall 2012. [3] (P)

MHS 254. Perspectives on Trauma. 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. No credit for students who earned credit for 295 section 02 in spring 2013. [3] (SBS)

MHS 290. Special Topics. 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 MHS 290] (No AXLE credit)

MHS 293a. Internship Training. 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 293a, and 6 hours in 293b. (2) Part-time: 2-9 hours total, including 1-6 hours in 293a and 1-3 hours in 293b. 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 293b. These hours shall not be included in the minimum hours required for the MHS major or minor. Corequisite: 293b. [Variable credit: 1-9] (No AXLE credit)

MHS 293b. Internship Readings and Research. 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 293a, and 6 hours in 293b. (2) Part-time: 2-9 hours total, including 1-6 hours in 293a

and 1-3 hours in 293b. 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: 293a. [Variable credit: 1-6] (No AXLE credit)

MHS 294a. Service Learning. Under faculty supervision, students will design a program of community service associated with a set of learning objectives. The service component (294a) 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, 294b, will consist of an independent study in the relevant discipline and must be closely linked to the issue(s) addressed in 294a. For example, a student may provide services to the elderly in nursing homes and use 294b 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 294b. 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: 294b. [1-3] (No AXLE credit)

MHS 294b. Service Learning Research and Readings. Under faculty supervision, students will design a program of community service associated with a set of learning objectives. The service component (294a) 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 - 294b - will consist of an independent study in the relevant discipline and must be closely linked to the issue(s) addressed in 294a. For example, a student may provide services to the elderly in nursing homes and use 294b 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: 294a. [1-3] (No AXLE credit)

MHS 295. Undergraduate Seminar. 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. [3; maximum of 6 credits total for all semesters of MHS 295] (No AXLE credit)

MHS 296. Independent Study. 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 296, 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 296; maximum of 12 credits for students in the MHS honors program] (No AXLE credit)

MHS 297. Honors Research. Offered on a graded basis only. Limited to seniors admitted to the departmental honors program. [3] (No AXLE credit)

MHS 298. Honors Thesis. Offered on a graded basis only. Limited to seniors admitted to the departmental honors program. [3] (No AXLE credit)

Neuroscience

NSC 190. Introduction to Neuroscience Research. (Formerly 290). 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)

NSC 201. Neuroscience. 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)

NSC 235. Biological Basis of Mental Disorders. Cellular and molecular neuropathology of cortical dysfunction resulting from affective disorders, drug addiction, neurodegenerative disease, and stroke. Prerequisite: 201 and permission of instructor. [3] (MNS)

NSC 255. Integrative Neuroscience. 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: 201 and senior standing. [3] (MNS)

NSC 260. Psychopharmacology. Actions of therapeutic drugs for psychiatric disorders and of drugs of abuse. Molecular mechanisms of effects on perception, cognition, and emotion. Prerequisite: 201. [3] (MNS)

NSC 269. Developmental Neuroscience. Normal and abnormal brain development. Cell division, migration, and death; synapse formation and plasticity; and clinical syndromes. Prerequisite: 201. [3] (MNS)

NSC 272. Structure and Function of the Cerebral Cortex. Classic and current concepts of cerebral function. Species differences, receptive field organization, neurotransmitters, modifications by experience, and behavioral effects. Prerequisite: 201. [3] (MNS)

NSC 274. Neuroanatomy. Gross structure, histological architecture, and techniques for creating images of the human brain. [3] (MNS)

NSC 291. Independent Reading in Neuroscience. 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 291] (No AXLE credit)

NSC 292a. Undergraduate Research. 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: 190 or both 201 and sophomore standing. [2] (No AXLE credit)

NSC 292b. Undergraduate Research. Continuation of 292a. 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: 292a. [2] (No AXLE credit)

NSC 293a. Advanced Research in Neuroscience. 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: 292b. [3] (No AXLE credit)

NSC 293b. Advanced Research in Neuroscience. 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 293a. [3] (No AXLE credit)

NSC 296. Honors Research. 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)

NSC 299. Senior Seminar in Neuroscience. Seminar with advanced reading, discussion, and writing on a specific topic in neuroscience. Limited to seniors. [3] (No AXLE Credit)

Philosophy

PHIL 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

PHIL 100. Introduction to Philosophy. 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 100W. [3] (HCA)

PHIL 100W. Introduction to Philosophy. 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 100. [3] (HCA)

PHIL 102. General Logic. 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)

PHIL 103. Introduction to Asian Philosophy. 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 103W. [3] (INT)

PHIL 103W. Introduction to Asian Philosophy. 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 103. [3] (INT)

PHIL 105. Introduction to Ethics. A study of theories of the good life and of the nature of virtue. Readings in major texts and discussion of selected problems. [3] (P)

PHIL 108. Introduction to Medical Ethics. Moral issues in the practice of medicine, biomedical research, policies and regulations related to health care. Repeat credit for students who have completed 108W. [3] (P)

PHIL 108W. Introduction to Medical Ethics. Moral issues in the practice of medicine, biomedical research, policies and regulations related to health care. Repeat credit for students who have completed 108. [3] (P)

PHIL 110. Introduction to Business Ethics. 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)

PHIL 115F. First-Year Writing Seminar. Topics Vary. [3]

PHIL 120. The Meaning of Life. 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 120W. [3] (HCA)

PHIL 120W. The Meaning of Life. 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 120. [3] (HCA)

PHIL 202. Formal Logic and Its Applications. 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 102 is not required. [3] (MNS)

PHIL 203. Advanced Asian Philosophy. Classical Asian philosophical texts. Historical development of practices and ideas; translation and interpretation issues; comparisons with European and other traditions of thought. [3] (INT)

PHIL 210. Ancient Philosophy. An examination of the major Greek and Roman philosophers with emphasis on the works of Plato and Aristotle. [3] (HCA)

PHIL 211. Medieval Philosophy. 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)

PHIL 212. Modern Philosophy. An examination of the major philosophers of modern Europe from Descartes and Spinoza through Locke, Berkeley, Hume, and Kant. [3] (HCA)

PHIL 213. Contemporary Philosophy. 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)

PHIL 216. Philosophy of Knowledge. Nature, sources, and scope of scientific, moral, and religious belief. Justification, knowledge, and skeptical challenges to their legitimacy. [3] (HCA)

PHIL 217. Metaphysics. Selected problems in metaphysics such as ultimate explanation, meaning of existence, time and eternity, freedom and determinism, and science and religion. [3] (HCA)

PHIL 218. Hellenistic and Late Ancient Philosophy. Philosophical ideas of Stoics, Cynics, Epicureans, skeptics, Peripatetics, Neoplatonists, and early monotheist thinkers such as Philo, Origen, and Philoponus. [3] (HCA)

PHIL 220. Immanuel Kant. 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)

PHIL 222. American Philosophy. A study of the works of selected American philosophers from the colonial period to the present. [3] (US)

PHIL 224. Existential Philosophy. A study of two or three existential philosophers and selected problems that arise in relation to their thought. [3] (HCA)

PHIL 226. Phenomenology. 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)

PHIL 228. Nineteenth-Century Philosophy. A study of selected themes and writings from nineteenth-century European philosophers. [3] (INT)

PHIL 231. Philosophy of History. Focus on alternative conceptions of time and history in Aristotle, Augustine, Kant, Hegel, Heidegger, and Benjamin. [3] (HCA)

PHIL 232. Critical Theory. 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)

PHIL 233W. Writing as Political Resistance. 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)

PHIL 234. Philosophy of Education. Analysis of educational concepts. Educational implications of theories of knowledge and theories of the individual. Emphasis on higher education. [3] (HCA)

PHIL 235. Gender and Sexuality. 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)

PHIL 238. Contemporary Ethical Theory. A study of theories about the cognitive foundations of ethical discourses. Prerequisite: 105. [3] (HCA)

PHIL 239. Moral Problems. 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 239W. Prerequisite: 105. [3] (P)

PHIL 239W. Moral Problems. 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 239. Prerequisite: 105. [3] (P)

PHIL 240. History of Aesthetics. History of philosophy of art, aesthetic experience, creativity, criticism, and related concepts. [3] (HCA)

PHIL 241. Modernistic Aesthetics. Abstraction, nontraditional media, mixed media, new media, changes in artistic institutions, and the death of art. [3] (HCA)

PHIL 242. Philosophy of Religion. A study of various problems concerning religious experiences; ideas about religion and divinity. [3] (HCA)

PHIL 243. Philosophy of Film. 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)

PHIL 244. Philosophy and the Natural Sciences. 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)

PHIL 245. Humanity, Evolution, and God. 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)

PHIL 246. Philosophy of Language. 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)

PHIL 247. Kierkegaard and Nietzsche. A study of selected works. [3] (HCA)

PHIL 248. Philosophy and Literature. 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 248W. [3] (HCA)

PHIL 248W. Philosophy and Literature. 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 248. [3] (HCA)

PHIL 249. Philosophy of Music. Music and meaning, language, emotion, expression, interpretation, performance, the body, and politics. No musical background is required. [3] (HCA)

PHIL 251. Topics in Aesthetics. Philosophy of art and aesthetic theory. [3] (HCA)

PHIL 252. Political and Social Philosophy. Central issues and arguments concerning individual liberty, political authority, democracy, and justice. Key texts and arguments. Contemporary debates. [3] (P)

PHIL 254. Modern Philosophies of Law. 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)

PHIL 256. Philosophy of Mind. 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)

PHIL 257. Early Modern Political Philosophy. 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)

PHIL 258. Contemporary Political Philosophy. 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)

PHIL 260. Twentieth-Century Continental Philosophy. A study of selected twentieth-century philosophers such as Derrida, Foucault, and Lacan. [3] (HCA)

PHIL 261. Jewish Philosophy. Introduction to Jewish philosophy and the philosophical achievement of such major figures as Philo, Saadiah, Maimonides, Levinas, and selected contemporary thinkers. [3] (HCA)

PHIL 262. Islamic Philosophy. Introduction to the major figures of Islamic philosophy including Kindi, Razi, Farabi, Avicenna, and Ibn Khaldun. [3] (INT)

PHIL 263. French Feminism. Introduction to the tradition of French feminist philosophy, including relevant works by Beauvoir, Cixous, Irigaray, Kristeva, LeDoeuff, Kofmann, and others. [3] (No AXLE credit)

PHIL 270. Ethics and Medicine. Selected ethical issues raised by clinical practice, medical theories, and biomedical research and technology. No credit for students who have completed 115F, section 3. Prerequisite: 105. [3] (P)

PHIL 271. Ethics and Business. 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: 105. [3] (P)

PHIL 272. Ethics and Law. 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 272W. Prerequisite: 105. [3] (SBS)

PHIL 272W. Ethics and Law. 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 272. Prerequisite: 105. [3] (SBS)

PHIL 273. Environmental Philosophy. 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)

PHIL 274. Ethics and Animals. 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)

PHIL 289a. Independent Readings. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

PHIL 289b. Independent Readings. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

PHIL 294a. Selected Topics. 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)

PHIL 294b. Selected Topics. 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)

PHIL 295. Independent Study. 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 295] (No AXLE credit)

Physics

PHYS 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

PHYS 110. Introductory Physics. Normally accompanied by 111. 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. No credit for students who have earned credit for 105. [3] (MNS)

PHYS 111. Introductory Physics Laboratory. Laboratory to accompany 110. Corequisite: 110. One three-hour laboratory per week. Satisfies the AXLE lab course requirement when completed with 110. [1] (No AXLE credit)

PHYS 113a. Introductory Physics for the Life Sciences I. Normally accompanied by 114a. 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 155a or a higher level calculus course. Prior study of calculus or concurrent enrollment in Math 140, 150a, or 155a is expected. No credit for students who have earned credit for 116a or 121a. [3] (MNS)

PHYS 113b. Introductory Physics for the Life Sciences II. Normally accompanied by 114b. 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 155b or a higher level calculus course. Prior study of calculus or concurrent enrollment in Math 140, 150b, or 155b is expected. No credit for students who have earned credit for 116b or 121b. [3] (MNS)

PHYS 114a. Laboratory for Introductory Physics for the Life Sciences I. Laboratory to accompany Physics 113a. Normally accompanied by 113a. Satisfies the AXLE lab course requirement when completed with 113a. No credit for students who have earned credit for 118a or 121a. [1] (No AXLE credit)

PHYS 114b. Laboratory for Introductory Physics for the Life Sciences II. Laboratory to accompany Physics 113b. Normally accompanied by 113b. Satisfies the AXLE lab course requirement when completed with 113b. No credit for students who have earned credit for 118b or 121b. [1] (No AXLE credit)

PHYS 115F. First-Year Writing Seminar. Topics Vary. [3]

PHYS 116a. General Physics I. Normally accompanied by 118a. Calculus-based introduction to general physics and its applications. Mechanics, heat, and sound. Potential majors are strongly advised to take MATH 155a or a higher level calculus course. Prior study of calculus or concurrent enrollment in MATH 150a or 155a is expected. No credit for students who have earned credit for 113a or 121a. [3] (MNS)

PHYS 116b. General Physics II. Normally accompanied by 118b. Calculus-based introduction to general physics and its applications. Electricity and magnetism, optics, modern physics. Potential majors are strongly advised to take MATH 155b or a higher level calculus course. Prior study of calculus or concurrent enrollment in MATH 150b or 155b is expected. No credit for students who have earned credit for 113b or 121b. [3] (MNS)

PHYS 118a. General Physics Laboratory I. Laboratory to accompany 116a. Normally accompanied by 116a. Satisfies the AXLE lab course requirement when completed with 116a. No credit for students who have earned credit for 114a or 121a. [1] (No AXLE credit)

PHYS 118b. General Physics Laboratory II. Laboratory to accompany 116b. Normally accompanied by 116b. Satisfies the AXLE lab course requirement when completed with 116b. No credit for students who have earned credit for 114b or 121b. [1] (No AXLE credit)

PHYS 121a. Principles of Physics I. 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 one-hour discussion period on modern topics of interest. One three-hour laboratory per week. Students who have earned credit for both 113a and 114a or both 116a and 118a will earn one hour of credit for this course. Students who have earned credit for 114a or 116a only will earn two hours of credit for this course. Students who have earned credit for 113a or 118a only will earn four hours of credit for this course. Prerequisite or corequisite: MATH 155b or 170. [5] (MNS)

PHYS 121b. Principles of Physics II. Continuation of 121a. 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 one-hour discussion period on modern topics of interest. One three-hour laboratory per week. Students who have earned credit for both 113b and 114b or both 116b and 118b will earn one hour of credit for this course. Students who have earned credit for 113b or 116b only will earn two hours of credit for this course. Students who have earned credit for 114b or 118b only will earn four hours of credit for this course. Prerequisite or corequisite: MATH 175 or 205a. [5] (MNS)

PHYS 221. Classical and Modern Optics. 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 113b or 116b or 121b; and either MATH 150b or 155b. [3] (MNS)

PHYS 223. Thermal and Statistical Physics. 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. Prerequisite or corequisite: 227a. Serves as repeat credit for students who have completed 223c. [3] (MNS)

PHYS 223c. Computational Thermal and Statistical Physics. 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. Prerequisite or corequisite: 227a. Serves as repeat credit for students who have completed 223. [3] (MNS)

PHYS 225. Concepts and Applications of Quantum Physics. Atomic and molecular structure, interaction of light with atoms and molecules, and spectroscopy. One three-hour laboratory per week. Repeat credit for students who have completed 225W. Prerequisite: either 113b or 116b or 121b. Prerequisite or corequisite: MATH 175 or 205b. [4] (MNS)

PHYS 225W. Concepts and Applications of Quantum Physics. Atomic and molecular structure, interaction of light with atoms and molecules, and spectroscopy. One three-hour laboratory per week. Repeat credit for students who have completed 225. Prerequisite: either 113b or 116b or 121b. Prerequisite or corequisite: MATH 175 or 205b. [4] (MNS)

PHYS 226. Modern Physics. Condensed-matter physics, biophysics, special theory of relativity, and nuclear and particle physics. One three-hour laboratory per week. Repeat credit for students who have completed 226W. Prerequisite: either 113b or 116b or 121b. Prerequisite or corequisite: MATH 175 or 205b. [4] (MNS)

PHYS 226W. Modern Physics. Condensed-matter physics, biophysics, special theory of relativity, and nuclear and particle physics. One three-hour laboratory per week. Repeat credit for students who have completed 226. Prerequisite: either 113b or 116b or 121b. Prerequisite or corequisite: MATH 175 or 205b. [4] (MNS)

PHYS 227a. Classical Mechanics I. Vector algebra and coordinate transformations. Gravity and potential energy. Free, forced, damped, and nonlinear harmonic oscillations. Chaos in simple mechanical systems. Lagrangian and Hamiltonian dynamics. The calculus of variations. Prerequisite: either 113b or 116b or 121b; and either MATH 150b or 155b. [3] (MNS)

PHYS 227b. Classical Mechanics II. Continuation of 227a. Orbital and rotational angular momentum and 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; special relativity. Prerequisite: 227a. [3] (MNS)

PHYS 228. Foundations of Medical Imaging. Physics and engineering of image formation for medical applications. Mathematical concepts of image formation and analysis. Techniques for recording images using ionizing radiation, including CT, ultrasound, magnetic resonance; and nuclear, including SPECT and PET. Methods of evaluating image quality. No credit for students who have earned credit for BME 258. Prerequisite: 113b, 116b, or 121b; and Mathematics: MATH 196; or one of (MATH 194, 204, 205b) and one of (MATH 198, 208). [3] (No AXLE credit)

PHYS 229a. Electricity, Magnetism, and Electrodynamics I. 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: either 113b or 116b or 121b; and either MATH 155b or 170. [3] (MNS)

PHYS 229b. Electricity, Magnetism, and Electrodynamics II. Continuation of 229a. Electromagnetic waves in dielectrics and conductors. Electromagnetic radiation in waveguide structures. Relativistic electrodynamics. Magnetism as a relativistic phenomenon. Prerequisite: 229a and either MATH 196, 198, or 208. [3] (MNS)

PHYS 238. Interconnections of Arts and Science: Goethe and the Natural World. (Also listed as German 238) Mutual influences between the arts and science, as exemplified in Goethe's Faust and Elective Infinities. Readings in English, with option of German readings for German studies majors. Focal points: empirical investigation, philosophical interrogation, and scientific explanation. Prerequisite: completion of the Mathematics and Natural Science requirement of AXLE. [3] (P)

PHYS 240. Selected Topics. Prerequisite or corequisite: either 225 or 225W and either 226 or 226W. [1-3] (No AXLE credit)

PHYS 243. Health Physics. Theory and instrumentation in health physics and radiological physics. Radiation shielding design, methods of external and internal dosimetry, and radiation regulatory issues. Prerequisite: Either 225 or 225W and either Math 150b or 155b. [3] (MNS)

PHYS 250. Undergraduate Seminar. Directed readings and discussions of current topics in physics. Preference to majors for enrollment. Prerequisite or corequisite: 225 or 225W, and either 226 or 226W, and either Math 175 or 205a. [1] (No AXLE credit)

PHYS 251a. Advanced Quantum Mechanics I. Wave-particle duality, indeterminacy, superposition, the Schrödinger equation, angular momentum, the hydrogen atom, and spin and indistinguishability. Prerequisite: Either 225 or 225W; either 226 or 226W; and Mathematics: MATH 196; or one of (MATH 194, 204, 205b) and one of (MATH 198, 208). [3] (MNS)

PHYS 251b. Advanced Quantum Mechanics II. Time-independent and time-dependent perturbation theory, matrix theory, scattering, applications to atomic physics, condensed matter physics, and astrophysics. Prerequisite: 229a and 251a. [3] (MNS)

PHYS 254. Physics of Condensed Matter. 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: 227a and either 223 or 223c. Prerequisite or corequisite: either 225 or 225W and either 226 or 226W. [3] (MNS)

PHYS 255. Introduction to Particle Physics. Weak, strong, and electromagnetic forces as evidenced by the interactions of elementary particles. Classification of particles and experimental techniques. Prerequisite or corequisite: either 225 or 225W and either 226 or 226W. [3] (MNS)

PHYS 257. Computational Physics. Topics in modern physics analyzed exclusively with computer programs. Three-body solar system orbits. Random walk diffusion and entropy growth. Magnetism in the second order using model, non-equilibrium molecular dynamics. Solutions to the Schrödinger equation with numerical methods. Prerequisite: either 113b or 116b or 121b; and either MATH 150b or 155b. [3] (MNS)

PHYS 266. Experimental Nanoscale Fabrication and Characterization. Laboratory course introduction to nanofabrication and characterization. Independent and original research in nanotechnology and nanoscience. Nanomaterials, nanoelectronics, and photonics. Repeat credit for students who completed 240 section 1 in fall 2010 or fall 2011. Prerequisite: One of (225 or 225W) and one of (226 or 226W); or one of (113a, 116a, or 121a) and one of (CHEM 104b or MSE 150b). [3] (MNS)

PHYS 285. Radiation Detectors and Measurements. 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. [4] (MNS)

PHYS 289. Directed Study. Individual research or readings under close faculty supervision. May be repeated for a total of 10 credits, but students may earn only up to 5 credits per semester of enrollment. Prerequisite: either 225 or 225W and either 226 or 226W. [1-5] (No AXLE credit)

PHYS 291. Independent Study. Introduction to independent research and scholarly investigation under faculty supervision. May be repeated for a total of 10 credits, but students may earn only up to 6 credits per semester of enrollment. Prerequisite or corequisite: multivariable calculus and either 225 or 225W and either 226 or 226W. [1-6; maximum of 10 credits total for all semesters of PHYS 291] (No AXLE credit)

PHYS 296. Honors Research and Senior Thesis. Independent experimental or theoretical investigations of basic problems in physics under faculty supervision, culminating in a written thesis submitted to the faculty. Required for departmental honors in physics. May be repeated for a total of 10 credits, but students may earn only up to 6 credits per semester of enrollment. Prerequisite: senior standing, major in Physics and Astronomy, and departmental approval. Prerequisite or corequisite: multivariable calculus and either 225 or 225W and either 226 or 226W. [1-6; maximum of 10 credits total for all semesters of PHYS 296] (No AXLE credit)

Political Science

PSCI 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

PSCI 100. Introduction to American Government and Politics. A descriptive survey of the constitutional and structural principles, processes, and functions of the American governmental system. [3] (US)

PSCI 101. Introduction to Comparative Politics. 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)

PSCI 102. Introduction to International Politics. 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)

PSCI 103. Justice. Different understandings of and debates concerning justice. Equality and freedom, individualism and community, diversity, patriotism, and representation. [3] (HCA)

PSCI 115F. First-Year Writing Seminar. Topics Vary. [3]

PSCI 150. U.S. Elections. 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)

PSCI 202. Ancient Political Thought. Greek and Roman political traditions. Plato, Aristotle, Cicero, and early Christian thinkers. Questions of justice, equality, democracy, and political knowledge. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 203. History of Modern Political Philosophy. Intensive analysis of the principal political philosophers in the modern tradition. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 205. Contemporary Political Theory. Debates in contemporary political thought. Justice, democracy, freedom, identity, and individualism. Includes emerging contemporary theories. Serves as repeat credit for students who completed 201 before fall 2010. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 207. Liberalism and Its Critics. 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 207W. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 207W. Liberalism and Its Critics. 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 207. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 208. Law, Politics, and Justice. 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: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 209. Issues in Political Theory. Topics vary from semester to semester. May be repeated once if there is no overlap with previous offerings. Prerequisite: 202, 203, or 205. [3] (No AXLE credit)

PSCI 210. West European Politics. Analysis of political development, social forces, institutions, and public policy in Great Britain, France, Germany, Italy, and Sweden. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 211. The European Union. Political and economic integration. Origins, institutions, decision processes, policies, achievements, and prospects of the European integration movement. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 213. Democratization and Political Development. 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. No credit for students who have taken 317. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 215. Change in Developing Countries. Comparative study of political and economic change in developing countries. Political implications of ethnicity, economic dependency, and environmental degradation. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 216. The Chinese Political System. 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: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 217. Latin American Politics. Cross-national analysis of political institutions, cultures, and processes of change in Latin America. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 219. Politics of Mexico. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 221. Causes of War. Scientific study of the onset of expansion and consequences of war; conditions of peace, emphasizing alliances, arms races, and crisis escalation. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 222. American Foreign Policy. Critical analysis of major international and domestic factors shaping U.S. foreign relations as reflected in selected twentieth- and twenty-first-century experiences. No credit for students who have taken 115F, Section 1. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 223. European Political Economy and Economic Institutions. 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. No credit for students who earned credit for PSCI 285 section 1 in summer 2011. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 225. International Political Economy. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 226. International Law and Organization. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 228. International Politics of Latin America. 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: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 229. Strategy and International Politics. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 230. Middle East Politics. Cross-national analysis of political institutions, political economies, and processes of change in the Middle East. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 235. Political Islam. 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: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 236. The Politics of Global Inequality. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 238. Comparative Political Parties. Political parties and their role in the democratic process of modern liberal western democracies, focusing on party systems and party organizations. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 240. Political Parties. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 241. American Public Opinion and Voting Behavior. The development and dynamics of political opinion and its effects on voting and public policy. Models of political behavior. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 243. Political Campaigns and the Electoral Process. Theories of representation and democratic accountability; electoral strategies and tactics, including political polling and analysis. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 244. The Legislative Process. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 245. The American Presidency. 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: 100, 101, 102, 103, or 150. [3] (US)

PSCI 247. American Political Culture. 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: 100, 101, 102, 103, or 150. [3] (US)

PSCI 249. American Public Opinion and American Politics. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 250. Group Conflict and Cooperation in U.S. Politics. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 251. The Politics of U.S. and Global Immigration. Political, philosophical, and moral issues. Serves as repeat credit for students who completed 283 section 1 in spring 2009. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 252. Business and Public Policy. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 253. Ethics and Public Policy. Political and moral values in assessing policy-making, public policies and processes, and policy impacts. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 254. Political Psychology. Interface between politics and the psychological processes of individuals and groups. Cognition, emotion, identity and intergroup relations, leadership, and extremism. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 255. Public Policy Problems. 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: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

PSCI 256. Politics of Public Policy. 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. Serves as repeat credit for students who completed 255 in spring 2011. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 257. The Politics of Capitalism. Commerce and capitalism in social and political life from the eighteenth century to the present. Questions of justice and equality, freedom, and democratic politics. Serves as repeat credit for students who completed 207 in fall 2009. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 258. Democratic Theory and Practice. 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: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 259. Political Strategy and Game Theory. 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. No credit for students who have earned credit for 359. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 260. Introduction to American Law. Law as a component of public policy and the political system; the elements and rationale of private law. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 262. The Judicial Process. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 263. Religion and Politics. Religion in democratic societies. Abortion, gay marriage, faith-based initiatives, and the Pledge of Allegiance. Historical works and contemporary contributions to debates. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (HCA)

PSCI 264W. Global Feminisms. Global politics through feminist perspectives. Interrelated systems of power. Race, gender, sexuality, colonialism, and imperialism. Health, genocide, and slavery. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (INT)

PSCI 265. Constitutional Law: Powers and Structures of Government. 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: 100, 101, 102, 103, or 150. [3] (US)

PSCI 266. Constitutional Law: Civil Liberties and Rights. 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: 100, 101, 102, 103, or 150. [3] (US)

PSCI 267. Voting and Political Representation in America. The history of voting rights and the efficacy of representation in the American political system. Political participation, voting rights, felony disenfranchisement, redistricting, and alternative electoral systems. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (US)

PSCI 268. American Health Policy. 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. Serves as repeat credit for students who completed 283 section 4 in spring 2011 or section 3 in fall 2011. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 270. Conducting Political Research. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 271. Feminist Theory and Research. 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: 100, 101, 102, 103, or 150. [3] (P)

PSCI 272W. The War in Iraq, 2003-2011. The structure of and changes in the U.S. military. Development of Iraqi political institutions. American foreign policymaking. 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: 100, 101, 102, 103, or 150. [3] (US)

PSCI 273. Conflict Management. Conflict management in international and domestic disputes. Negotiation, mediation, adjudication, intervention, and peacekeeping. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 275. National Security. 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: 100, 101, 102, 103, or 150. [3] (SBS)

PSCI 277. Future of Warfare. Political, societal, and technological factors that could affect the future conduct of warfare. Insurgency and counter-insurgency. Military operations other than war. Prerequisite or corequisite: 100, 101, 102, 103 or 150. [3] (SBS)

PSCI 280a. Internship Training. 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 280b and/or 280c. These hours may not be included in the minimum hours required in

the political science major. Corequisite: 280b and/or 280c. [1-9] (No AXLE credit)

PSCI 280b. Internship Research. 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. Corequisite: 280a. [Variable credit: 1-3] (No AXLE credit)

PSCI 280c. Internship Readings. 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. Corequisite: 280a. [Variable credit: 1-3] (No AXLE credit)

PSCI 281. Topics in Contemporary Politics. 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: 100, 101, 102, 103, or 150. [1-3] (No AXLE credit)

PSCI 283. Selected Topics in American Government. 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: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

PSCI 284. Selected Topics in Comparative Politics. 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: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

PSCI 285. Selected Topics in International Politics. 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: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

PSCI 286. Selected Topics in Political Theory. 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: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

PSCI 287. Selected Topics. 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: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

PSCI 289a. Independent Research. 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 289a, 289b, 290a, 290b, 291a, and 291b combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [1-3; maximum of 6 credits total for all semesters of PSCI 289a, 289b, 290a, 290b, 291a, 291b] (No AXLE credit)

PSCI 289b. Independent Research. 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 289a, 289b, 290a, 290b, 291a, and 291b combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [1-3; maximum of 6 credits total for all semesters of PSCI 289a, 289b, 290a, 290b, 291a, 291b] (No AXLE credit)

PSCI 291a. Directed Study. 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 289a, 289b, 290a, 290b, 291a, and 291b combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [1-3] (No AXLE credit)

PSCI 291b. Directed Study. 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 289a, 289b, 290a, 290b, 291a, and 291b combined if there is no duplication in topic, but students may earn only up to 3 credits per semester of enrollment. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [1-3; maximum of 6 credits total for all semesters of PSCI 289a, 289b, 290a, 290b, 291a, 291b] (No AXLE credit)

PSCI 299a. Senior Honors Research. Open only to seniors in the departmental honors program. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

PSCI 299b. Senior Honors Research. Open only to seniors in the departmental honors program. Prerequisite or corequisite: 100, 101, 102, 103, or 150. [3] (No AXLE credit)

Portuguese

PORT 102. Intensive Elementary Portuguese. 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 100a, 100b, or a higher level Portuguese language course. [4] (INT)

PORT 115F. First-Year Writing Seminar. Topics Vary. [3]

PORT 200. Intermediate Portuguese. 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: 102. [3] (INT)

PORT 201. Portuguese Composition and Conversation. Expository writing and development of speaking skills. Emphasis on pronunciation, vocabulary, and grammar. No credit for students who have earned credit 202. Prerequisite: 200. [3] (INT)

PORT 203. Brazilian Pop Culture. Development of written and oral communication skills through the study of Brazilian popular culture. Movies, music, television, and magazines. Prerequisite: 200. [3] (INT)

PORT 205. Introduction to Luso-Brazilian Literature. Critical readings and methods of literary analysis. Masterpieces from Portugal and Brazil from all genres in several periods. Conversation and writing. Prerequisite: 201 or 203. [3] (HCA)

PORT 225. Brazilian Culture through Native Material. Differences between spoken and written Portuguese in Brazil. Modern Brazilian culture, including popular music, film, politics, family life, and sports. Prerequisite: 200, 201, 202, or 203. [3] (P)

PORT 232. Brazilian Literature through the Nineteenth Century. Main literary trends, principal writers and works of Brazilian literature, from colonial beginnings through the nineteenth century. Study of the works of Gregório de Matos, Gonçalves Dias, Alencar, Machado de Assis, and Euclides da Cunha. Prerequisite: 205. [3] (HCA)

PORT 233. Modern Brazilian Literature. Brazilian literature from the Semana de Arte Moderna to the present. Modernist and neo-Modernist movements. Prerequisite: 205. [3] (HCA)

PORT 289. Independent Study. 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)

PORT 291. Brazilian Civilization through English Language Material. 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. No credit for graduate students in

Spanish and Portuguese. No credit for students who have earned credit for 115F section 1. [3] (P)

PORT 294. Special Topics in Portuguese Language, Literature, or Civilization. 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: 205. [3] (No AXLE credit)

PORT 295. Special Topics in Portuguese and Brazilian Literature or Civilization in English Translation. 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)

Psychology

PSY 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

PSY 101. General Psychology. 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. No credit for students who have earned credit for 115F sections 1, 2, or 3. [3] (SBS)

PSY 115F. First-Year Writing Seminar. Topics Vary. [3]

PSY 208. Principles of Experimental Design. Theory and research methods in psychological science. Philosophy of science, ethical issues, experimental design, and data interpretation. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 209. Quantitative Methods. Principles and methods for the statistical analysis of experiments, with emphasis on applications in psychology. Descriptive and inferential statistics. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY 211. Personality. Major theories of personality development, methods of assessment, and results of research, with an emphasis on normal behavior. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 214. Perception. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY 215. Abnormal Psychology. Mental and emotional disorders. Definitions of adequate human functioning processes that disrupt functioning. Methods of evaluation and treatment. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 216. Movement. Psychological, computational, and neural perspectives on the activities of looking, reaching, grasping, speaking, smiling or frowning, walking and running. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY 225. Cognitive Psychology. Attention, pattern recognition, knowledge representation, language, reasoning, and human intelligence. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 231. Social Psychology. The influence of social conditions upon behavior in interpersonal and group relations. Perception, judgment, learning, and attitudes. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 232. Mind and Brain. Concepts of cognitive neuroscience. Relationship between the brain and perception, cognition, attention, memory, language, thought, emotion, social judgments, and consciousness. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY 236. The Visual System. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (MNS)

PSY 238. Social Cognition and Neuroscience. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 239. Industrial and Organizational Psychology. 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: 101 or 115F section 1, 2, or 3; or a major in Cognitive Studies, Child Development, or Child Studies. [3] (SBS)

PSY 244. Introduction to Clinical Psychology. Historical foundations, professional ethics, principles of clinical assessment and therapy, and areas of specialization such as health psychology. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 245. Emotion. Definitions and functions of emotion. Emotion and health, emotion and psychopathology, individual differences, and emotional development. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 246. Schizophrenia. Neurological, psychological, cultural, and evolutionary perspectives. Genetics, epidemiology, symptomatology, sex differences, and affect. Prerequisite: 215 and NSC 201. [3] (SBS)

PSY 247. Depression. Psychological and biological perspectives on unipolar and bipolar affective disorders. Assessment and classification, epidemiology, genetics, family environment, and treatments. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 252. Human Sexuality. 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)

PSY 253. Human Memory. 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)

PSY 258. Animal Behavior and Evolutionary Psychology. Comparative and phylogenetic approach to the study of behavior, with special emphasis on sensory processes, instinctive behavior, the genetics of behavior, and ethology. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 268. Health Psychology. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 270. Positive Psychology. Optimal functioning in human psychology. Interdisciplinary approaches to well being, character strengths and virtues, positive emotions, and clinical implications. No credit for students who have earned credit for PSY 115F section 13. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 277. Brain Damage and Cognition. Effects of neurological impairment from stroke, injury, or disease on perception, speech, memory, judgment, and behavior. Relationship between brain systems and cognitive systems. Prerequisite: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (SBS)

PSY 280. Special Topics in Perception. 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: 214. [3] (No AXLE credit)

PSY 282. Special Topics in Cognitive Psychology. 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: 225. [3] (No AXLE credit)

PSY 285. Special Topics in Neuroscience. 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 201. [3] (No AXLE credit)

PSY 288. Special Topics in Clinical Psychology. 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: 215. [3] (No AXLE credit)

PSY 289. Special Topics in Social Psychology. 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: 231. [3] (No AXLE credit)

PSY 290. Directed Study. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [1-3] (No AXLE credit)

PSY 293. Independent Study. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [1-3] (No AXLE credit)

PSY 295a. Honors Seminar. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (No AXLE credit)

PSY 295b. Honors Seminar. 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: 101 or 115F section 1, 2, or 3; or a major in Child Development, Child Studies, or Cognitive Studies. [3] (No AXLE credit)

PSY 296a. Honors Thesis. 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: 295a or 295b. [3] (No AXLE credit)

PSY 296b. Honors Thesis. 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: 295b or 296a. [3] (No AXLE credit)

Public Policy Studies

PPS 294. Special Topics. 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)

PPS 295. Senior Seminar on Research in Public Policy. Supervised research project in policy area incorporating methodologies and analytical insights from more than one discipline. Offered on a graded basis only. [3] (SBS)

Religious Studies

RLST 101. Encountering Religious Diversity. 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)

RLST 107. Introduction to African American Religious Traditions. Historical survey of the leadership, dynamics, and cultural milieu of African American religious traditions. Institutional expressions and theologies from the colonial period to the present. [3] (US)

RLST 108. Themes in the Hebrew Bible. 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)

RLST 109. Themes in the New Testament. 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)

RLST 110W. Introduction to Southern Religion and Culture. 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)

RLST 111W. The Gnostic Gospels. Gnostic writings of the 2nd-4th centuries; relationship to other early Christian writings; modern views of Gnosticism. [3] (HCA)

RLST 112. Introduction to Judaism. 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)

RLST 113. Introduction to Islam. 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)

RLST 115F. First-Year Writing Seminar. Topics Vary. [3]

RLST 120. Religion, Sexuality, Power. Psychological, social scientific, and literary theories of how religious institutions control and channel human sexuality. Works by contemporary psychologists such as E. H. Erikson, L. Kohlberg, and social theorists such as C. Levi-Strauss, M. Foucault, and S. Gilman are used to examine the central role of sexuality in religious training and religious institutions. [3] (SBS)

RLST 123. Religion and Human Development. Psychological theories of human development with a focus on religious and spiritual aspects of personality. Religion and human well being. Sigmund Freud, William James, and Carl Jung. [3] (SBS)

RLST 130. Introduction to Hindu and Buddhist Traditions. Sacred texts, key beliefs, and practices of each tradition in historical and cultural context. [3] (INT)

RLST 135. Religions in China. 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)

RLST 136. Religions of Japan. 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)

RLST 137. Religions of Tibet and the Himalaya. 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, Bön, Catholicism, and modernity. [3] (INT)

RLST 140. Great Books of Literature and Religion. "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)

RLST 181. Myth and History in Religious Biography. 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)

RLST 200. Mysticism and Spirituality, Comparative Study. Philosophical, historical, and textual perspectives. Key mystical traditions, philosophies, texts, and figures from Hindu, Buddhist, and Christian traditions. The popular emergence of spirituality as a contemporary mode of religiosity in advanced capitalist societies. [3] (P)

RLST 202. Natural Science and the Religious Life. 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)

RLST 203. Jewish Theories of Religion. 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)

RLST 204W. Evangelical Protestantism and the Culture Wars. 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)

RLST 206. Global Interpretations of Christian Scriptures. 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)

RLST 210. Interpreting the Gospels. 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)

RLST 212. The Pauline Interpretation of Christianity. 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)

RLST 213. Ethics of the New Testament. Major ethical teachings as presented in New Testament documents, letters, and as interpreted through history and cultures. [3] (HCA)

RLST 216. Christianity in the Reformation Era. 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)

RLST 219. Martin Luther King, Jr., and the Social Roles of Religion. 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)

RLST 220W. Constructions of Jewish Identity in the Modern World. 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)

RLST 221. Ethics and Ecology. 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)

RLST 222. Jewish Ethics. 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 112. [3] (HCA)

RLST 223. Ethics and Feminism. Implications of gender theory for understanding the Judeo-Christian moral traditions. Topics include: the nature of the moral subject, the social construction of gender, patriarchal consciousness, the abuse of women, black feminism, motherhood, and feminist ecology. [3] (P)

RLST 225. Sexuality in the Hebrew Bible and the Ancient Near East. Issues of sexuality in the Hebrew Bible in the context of the Ancient Near East. Homosexuality, virginity, and incest. [3] (HCA)

RLST 226. Ancient Goddesses. 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)

RLST 229. The Holocaust: Its Meaning and Implications. An interdisciplinary study of the systematic destruction of the European Jewish communities during World War II. 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)

RLST 230. Women and Religion. 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)

RLST 234. Post-Freudian Theories and Religion. 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: 120 or 121. [3] (SBS)

RLST 238. Marriage in the Ancient Near East and the Hebrew Bible. 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)

RLST 239. Religious Autobiography. 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)

RLST 240. The Nature of Evil. 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)

RLST 241. Religion, Science, and Evolution. Interactions between science and religion from antiquity to Charles Darwin. Subsequent modifications of Darwinism and religious responsibilities to evolutionary theories. [3] (SBS)

RLST 242. Slave Thought and Culture in the American South. The religious thought of African American slaves as expressed through folklore, literature, and art. Creative ideas about the cosmos, the supernatural, transcendent spiritual reality, natural social reality, and the human condition. Offered on a graded basis only. [3] (US)

RLST 243. New Age Spiritualities. Spirituality in the natural world as rediscovered through the recycling of ancient alchemical and astrological beliefs in syncretism with Eastern religions. Esoteric phenomena, including communication with the dead, transmigration of the soul, end-of-the-world prophecies, chakras, and auras. Ecological consciousness and the reemergence of Shamanism and nature-based religions. [3] (P)

RLST 244. Buddhist Traditions. The history, teachings, and practices of Buddhism from its origins in India to its migration to Tibet and East Asia. Analysis of key aspects of Buddhist thought and practice, focusing upon the teachings of the Theravada school and development of Mahayana Buddhist traditions such as Zen. [3] (INT)

RLST 246. Apophatic Mysticism and Culture. Unsayable or negative, theology from Plato and Neoplatonism through medieval mysticism, Kabbalah and Sufism. Baroque expressions in Silesius Angelus and John of the Cross. Romantic authors and modern and postmodern writers. Chinese Taoism, Advaita Vedanta, and the Buddhism of Nagarjuna. Serves as repeat credit for students who completed 294 section 1 in fall 2009. [3] (HCA)

RLST 247. Daoist Tradition. 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)

RLST 249. Zen Buddhism. 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)

RLST 250. Classical Philosophies of India. Hindu and Buddhist traditions. The six "mainstream" schools (darsana) of Hindu thought and their interaction with Buddhist philosophy in ancient India. [3] (INT)

RLST 251. Islamic Mysticism. 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)

RLST 252. Reformers of the Islamic Tradition. Historical survey of Muslim reformists. Religious responses to crises in the pre-modern debates over orthodoxy and heresy; modern (Western colonialism) and recent periods. [3] (INT)

RLST 253. East Asian Buddhism. East Asian Buddhist texts. Key Buddhist ideas, values, practices, and institutions. Chronological surveys of key developments in major historical periods. [3] (INT)

RLST 254. The Qur'an and Its Interpreters. 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)

RLST 262. Culture, Religion, and Politics of the Arab World. 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. Serves as repeat credit for students who completed 294 section 1 in summer 2008, summer 2009, or summer 2010. [3] (INT)

RLST 264. Foundations of Hindu Traditions. 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)

RLST 265. Mythologies and Epics of South Asia. 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)

RLST 266. Devotional Traditions of South Asia: Hindu, Muslim, Sikh. 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)

RLST 269. Sacred Space in the Tibetan World. Creation, mediation, and reproduction of sacred space from artifacts to built structures to geographies. Narrative, ritual, and cosmological aspects of Tibetan Buddhist, Bön, and local religious traditions. Cases include premodern to modern periods, and local to global contexts. [3] (INT)

RLST 270. Buddhism and the State. 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)

RLST 275. Chinese Religions through Stories. 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)

RLST 278. Native American Religious Traditions. 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)

RLST 280W. Senior Seminar. Methods for studying religion and religious traditions. Open only to seniors with a major or minor in Religious Studies. [3] (HCA)

RLST 289a. Independent Study. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

RLST 289b. Independent Study. May be repeated for a total of 6 credits in 289a and 289b 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 289a and 289b] (No AXLE credit)

RLST 292. Advanced Seminar in Arabic. 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. [3] (No AXLE credit)

RLST 293. Advanced Seminar in Islamic Tradition. 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] (No AXLE credit)

RLST 294. Special Topics in Religious Studies. 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)

RLST 299a. Senior Honors Thesis. 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)

RLST 299b. Senior Honors Thesis. 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)

Russian

RUSS 101. First-Year Russian. Elementary conversation and reading with an emphasis on everyday situations. An introduction to Russian culture and life through contemporary Russian materials. Five hours of class work. No credit for students who have earned credit for a more advanced Russian language course. [5] (No AXLE credit)

RUSS 102. First-Year Russian. Continuation of 101 with emphasis on reading and talking about texts. No credit for students who have earned credit for a more advanced Russian language course. Prerequisite: 101. [5] (INT)

RUSS 115F. First-Year Writing Seminar. Topics Vary. [3]

RUSS 171. A Tale of Three Cities. Kiev, Moscow, and St. Petersburg. The evolution of Russian civilization to 1900. Competing influences in the shaping of Russian culture and national identity. Taught in English. [3] (INT)

RUSS 172. Russian Culture in the Twentieth Century. Russian cinema, literature, music, art, and sports in historical context. Taught in English. [3] (INT)

RUSS 183. Russian Fairy Tales. Approaches to the study of folklore, including structuralism, psychoanalysis, sociology, and feminism. Soviet narratives that assimilated fairy-tale archetypes to promote or undermine Soviet ideology. Course taught in English. [3] (INT)

RUSS 190. Russian and Soviet Short Story. Nineteenth- and twentieth-century short stories. Tolstoy, Chekhov, Babel, Aksenov, and Pelevin. Literary traditions, narrative structures, and authorial styles within historical and political context. No knowledge of Russian required. [3] (INT)

RUSS 203. Second-Year Russian. Practice of reading, speaking, listening, and writing. Grammar review and reading of contemporary Russian texts. Students planning to continue study in Russian should enroll in 205 concurrently with 203. Prerequisite: 102. [3] (INT)

RUSS 204. Second-Year Russian. Continuation of 203. Practice of reading, speaking, listening, and writing. Grammar review and reading of contemporary Russian texts. Prerequisite: 203. [3] (INT)

RUSS 205. Second-Year Russian: Reading and Conversation. Further development of reading and speaking. Prerequisite: 102. Corequisite: 203 or 204. [2] (No AXLE credit)

RUSS 221. Survey of Russian Literature in English Translation. Main currents, writers, and works of Russian literature. The nineteenth century: Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, and Tolstoy. [3] (HCA)

RUSS 222. Survey of Russian Literature in English Translation. Main currents, writers, and works of Russian literature. The twentieth century: Bulgakov, Pasternak, Solzhenitsyn, Aksenov, Trifonov, and Petrushevskaya. No knowledge of Russian required. [3] (HCA)

RUSS 223. Composition and Conversation. Development of all language skills at the intermediate-advanced level. Reading of contemporary short stories. Prerequisite: 204. [3] (INT)

RUSS 224. Composition and Conversation. Continuation of 223. Development of all language skills at the intermediate-advanced level. Reading of contemporary short stories. Prerequisite: 204. [3] (INT)

RUSS 231. Jews in Russian Culture: Survival and Identity. A course on the history of Jewish contributions to Russian culture, including literature, the visual arts, theatre, and film. Questions of assimilation, the rise of Jewish national consciousness, and interest in Jewish heritage are discussed. No knowledge of Russian required. [3] (INT)

RUSS 232. The Evil Empire: Stalin's Russia. Life in Stalin's Russia as portrayed in memoirs, novels, stories, poetry, films, and music. No knowledge of Russian required. [3] (INT)

RUSS 233. *Crime and Punishment.* Dostoevsky's psychological thriller *Crime and Punishment* and two kinds of related texts: those that influenced Dostoevsky's classic crime novel (works by Pushkin and Balzac) and those influenced, in turn, by Dostoevsky's novel (works by Nabokov and Trifonov). No knowledge of Russian required. [3] (HCA)

RUSS 234. The Russian Cinema. Socialist Realism of the 1930s to 1950s; masterpieces of the post-Stalin era in the1960s and '70s; sex and violence of the Perestroika; new post-Soviet cinema. Films by such directors as Eisenstein, Pyryev, Romm, Tarkovsky, Mikhalkov, and Sokurov are studied and discussed within the political context. No knowledge of Russian required. [3] (INT)

RUSS 238. Dostoevsky's Major Novels: Philosophy and Aesthetics. Major prose works in historical and social context, including *The Notes from the Underground* and *The Brothers Karamazov.* Influence on twentieth-century philosophy. Critical responses from other writers and philosophers of the nineteenth and twentieth centuries. Taught in English with texts in English translation. [3] (INT)

RUSS 240. Terrors and Terrorists: Russian Literature of the Irrational and the Absurd. Philosophical and psychological sources of Russian literature and culture. Conflicts of cultural identity, including tradition vs. modernization, Western vs. Eastern, order vs. chaos, and rationality vs. absurdity. Literary themes including the supernatural, the irrational, political and philosophical conflict, and utopias and dystopias. Alexander Pushkin, Nikolai Gogol, Fyodor Dostoevsky, Evgenii Zamiatin, and Viktor Pelevin. Taught in English. [3] (INT)

RUSS 250. Socio-Political and Cultural Developments in Post-Soviet Regions. Political, economic, and cultural developments in the former Soviet republics. Transitions from authoritarianism to democracy and from state-controlled to market economies. Organized crime and corruption. Changes in censorship and education. [3] (INT)

RUSS 257. Advanced Composition and Conversation. Prerequisite: 224. [3] (No AXLE credit)

RUSS 258. Advanced Composition and Conversation. Continuation of 257. Prerequisite: 224. [3] (No AXLE Credit)

RUSS 280a. Internship Training. 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 280b concurrently with 280a. A minimum of 3 hours of 280b must be completed, independent of hours taken in 280a. Students may earn up to 6 hours of 280b 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 280b. Hours of 280a cannot be included in the minimum hours counted toward the Russian majors or minors. Corequisite: 280b. [Variable credit: 1-9] (No AXLE credit)

RUSS 280b. Internship Readings and Research. 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 280b must be completed concurrently with 280a. A minimum of 3 hours of 280b must be completed, independent of hours taken in 280a. Students may earn up to 6 hours of 280b 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: 280a. [Variable credit: 3-6] (No AXLE credit)

RUSS 289a. Independent Readings. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

RUSS 289b. Independent Readings. 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 289a and 289b 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 289a and 289b] (No AXLE credit)

RUSS 294a. Selected Topics. May be repeated for a total of 12 credits in 294a and 294b 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 RUSS 294a and 294b] (No AXLE credit)

RUSS 294b. Selected Topics. May be repeated for a total of 12 credits in 294a and 294b 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 RUSS 294a and 294b] (No AXLE credit)

Sociology

SOC 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

SOC 101. Introduction to Sociology. 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 101W. No credit for students who have earned credit for 103. [3] (SBS)

SOC 101W. Introduction to Sociology. 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 101. No credit for students who have earned credit for 103. [3] (SBS)

SOC 102. Contemporary Social Issues. 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 102W. [3] (SBS)

SOC 102W. Contemporary Social Issues. 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 102. [3] (SBS)

SOC 104. Men and Women in American Society. 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 104W. [3] (P)

SOC 104W. Men and Women in American Society. 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 104. [3] (P)

SOC 115F. First-Year Writing Seminar. Topics Vary. [3]

SOC 127. Statistics for Social Scientists. 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] (No AXLE credit)

SOC 201. Sociological Perspectives. 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)

SOC 204. Self, Society, and Social Change. 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)

SOC 205. Poverty, Health, and Politics. 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)

SOC 206. Sociology of Health and Environmental Science. 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)

SOC 207. Climate Change and Society. 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)

SOC 208. Environment and Development. 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)

SOC 211. Introduction to Social Research. Theory, hypothesis formation, and measurement. Overview and evaluation of research strategies in sociology. The ethics of social research. Univariate statistics and cross tabulation, logic and interpretation of multivariate analysis. Prerequisite or corequisite: major or minor in Sociology and either 127, MATH 127b or 218, or ECON 150 or 155. Open also to students who have earned credit for PSY 209 or PSY-PC 2101 and are majors in Child Development, Child Studies, Cognitive Studies, Human and Organizational Development, or A&S Psychology. [3] (SBS)

SOC 212. Research Practicum. Application of research skills acquired in 211. A research report, including statement of hypothesis, discussion of data and methods, and interpretation of results, is required. Prerequisite: 211 and either 127, MATH 127b or 218, or ECON 150 or 155. Open also to students who have earned credit for PSY 209 or PSY-PC 2101 and are majors in Child Development, Child Studies, Cognitive Studies, Human and Organizational Development, or A&S Psychology. [3] (No AXLE credit)

SOC 214. Art in Everyday Life. Art and the public sphere. Cultural analysis, critical theory, art production and reception, curation, ethnography. [3] (SBS)

SOC 216. Change and Social Movements in the Sixties. 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)

SOC 218. Tourism, Culture, and Place. The nature of tourist encounters. Marketing and displaying culture to tourists. Implications for urban economies and landscapes, and for tourists and locals. Biweekly field trips in Nashville. Open only to Sociology majors and minors. [3] (SBS)

SOC 219. Seeing Social Life. 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 101, 101W, 102, 102W, 104, 104W, or ANTH 101. [3] (SBS)

SOC 220. Population and Society. 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)

SOC 221. Environmental Inequality and Justice. 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. No credit for students who have earned credit for WGS 115F section 4. [3] (SBS)

SOC 224. Women and the Law. History of laws subordinating women and efforts by feminists to achieve substantive and procedural equity. American historical examples augmented by comparative research. Examines employment law, laws making rape and domestic violence illegal, and tax law. [3] (P)

SOC 225. Women and Social Activism. 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. No credit for students who earned credit for 115F section 17. [3] (SBS)

SOC 227. Creativity and Innovation in Society. The social context for innovation and creativity. Interdisciplinary approaches to the creative process, invention, and entrepreneurship. Social relations and networks surrounding creative work; gate keeping; the diffusions of innovation; changing institutions; and economic forces. [3] (SBS)

SOC 228. Cultural Consumption and Audiences. How audiences and consumers engage with art and culture - from popular music to film, classical art, fashion, and food. [3] (SBS)

SOC 229. Cultural Production and Institutions. 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. Prerequisite: 228. [3] (SBS)

SOC 230. The Family. 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)

SOC 231. Criminology. The nature, distribution, causes, and control of crime with emphases on contemporary American society and a broad range of types of crime. [3] (SBS)

SOC 232. Delinquency and Juvenile Justice. The nature, distribution, causes and control of juvenile delinquency and the operation of the juvenile justice system in contemporary American society. [3] (SBS)

SOC 233. Deviant Behavior and Social Control. 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)

SOC 234. Prison Life. Prison life from the perspective of prisoners, officials, and the society in which they operate. [3] (SBS)

SOC 235. Contemporary American Society. Shifts in the political, economic, and social structure of the United States; changes in technology, demography, and social mores. [3] (US)

SOC 236. Class, Status, and Power. 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)

SOC 237. Society and Medicine. 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)

SOC 239. Women, Gender, and Globalization. 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)

SOC 240. Law and Society. Examines the relationship between the legal system and other institutions with illustrations drawn from both American and other societies. The actual operation of the legal system including lawyers, courts, and police is described. [3] (SBS)

SOC 244. Politics, State, and Society. 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)

SOC 246. Sociology of Religion. 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)

SOC 247. Human Behavior in Organizations. 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)

SOC 248. Popular Culture Dynamics. 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)

SOC 249. American Social Movements. The effect of key social movements on American society. Comparison of the organization and success of movements such as the American Revolution, Southern Secession, Populism, Woman's Suffrage, and Civil Rights. [3] (US)

SOC 250. Gender in Society. 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)

SOC 251. Women and Public Policy in America. 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)

SOC 253. Racial Domination, Racial Progress. 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)

SOC 254. Schools and Society: The Sociology of Education. 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)

SOC 255. Racial and Ethnic Minorities in the United States. 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)

SOC 256. Race, Gender, and Sport. 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)

SOC 257. Gender, Sexuality, and the Body. 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)

SOC 264. Social Dynamics of Mental Health. 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)

SOC 268. Race, Gender, and Health. 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)

SOC 270. Human Ecology and Society. Demography, social organization, technology, and the global environment. Shifting energy systems; sustainable industries; food production. Growth vs. development. Affluence, waste, and recycling. [3] (INT)

SOC 272. Gender Identities, Interactions, and Relationships. 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)

SOC 274. Immigration in America. 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)

SOC 277. Contemporary Latin America. 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)

SOC 279. Contemporary Mexican Society. 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)

SOC 280a. Internship Readings and Research. 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 280a concurrently with the completion of internship training, Sociology 280b. A minimum of 3 hours of 280a must be completed with hours taken in 280b. 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: 280b. [3-6] (No AXLE credit)

SOC 280b. Internship Training. 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 280a concurrently with the completion of internship training, Sociology 280b. A minimum of 3 hours of 280a must be completed with hours taken in 280b. 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 280a. Hours of 280b may not be included in the minimum hours counted toward the sociology major. Corequisite: 280a. [1-9] (No AXLE credit)

SOC 294. Seminars in Selected Topics. 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 SOC 294] (No AXLE credit)

SOC 296. Honors Research. 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: 211. [3-6; maximum of 12 credits total for all semesters of SOC 296] (No AXLE credit)

SOC 299. Independent Research and Writing. 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 SOC 299] (No AXLE credit)

Spanish

SPAN 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

SPAN 100. Spanish for True Beginners. 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. Four hours of classroom instruction plus one hour of independent research activities. Students continuing in Spanish take Spanish 102. No credit for students who have earned credit for a more advanced Spanish language course. [5] (No AXLE credit)

SPAN 101. Elementary Spanish I. Basic listening, speaking, reading, and writing skills. Communicative approach and exposure to aspects of Spanish-speaking cultures. Conducted entirely in Spanish. Four hours of classroom instruction plus one hour of independent research activities. Intended for students with prior study of the language and a departmental placement score under 275. Serves as repeat credit for students who have completed 100. No credit for students who have earned credit for a more advanced Spanish language course. [5] (No AXLE credit)

SPAN 102. Elementary Spanish II. Further development of listening, speaking, reading, and writing skills. Communicative approach, exposure to aspects of Spanish-speaking culture. Conducted entirely in Spanish. Four hours of classroom instruction plus one hour of independent research activities. Prerequisite: 100 or 101. No credit for students who have earned credit for a more advanced Spanish language course. [5] (INT)

SPAN 103. Intensive Elementary Spanish. A communicative approach to reading, writing, listening, and speaking for students who have studied one to three years of Spanish. Provides a rigorous review of elementary Spanish through four hours of class instruction and one hour of independent research activities. Departmental Spanish placement exam score of 275-364. No credit for students who have earned credit for 100, 101, or 102. No credit for students who have earned credit for a more advanced Spanish language course. [5] (INT)

SPAN 104. Intermediate Spanish. 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 102 or 103 or have a departmental placement score of 365-440. No credit for students who have earned credit for a more advanced Spanish language course. [5] (INT)

SPAN 115F. First-Year Writing Seminar. Topics Vary. [3]

SPAN 200. Intensive Spanish. 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)

SPAN 201W. Intermediate Spanish Writing. 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 104 or have a departmental Spanish placement exam score of 441 or higher. [3] (INT)

SPAN 202. Spanish for Oral Communication Through Cultural Topics. 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. Offered on a graded basis only. Prerequisite: 201W. Students with advanced oral skills will be placed in a higher level course. [3] (INT)

SPAN 203. Introduction to Spanish and Spanish American Literature. Critical reading and methods of literary analysis. Selections cover all genres in several periods. Prerequisite: 201W and 202. [3] (HCA)

SPAN 204. Introduction to Hispanic Cultural Studies. An examination of contemporary Hispanic culture through a variety of media (newspapers, magazines, comics, Web sites), arts, and entertainment. Prerequisite: 201W and 202. Not open to students who have studied abroad. [3] (INT)

SPAN 205. The Way of Saint James. 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. Repeat credit for students who completed 296 section 1 in summer 2012 and summer 2013. Prerequisite: 201W and 202. [3] (HCA)

SPAN 206. Spanish for Business and Economics. Linguistic skills and cultural information for conducting business in the Spanish-speaking world. Basic syntactic and phonological structures within the context of business. Activities to develop written, oral, and aural skills in several areas, including finance, management, marketing, and tourism. Offered on a graded basis only. Prerequisite: 201W and 202. [3] (INT)

SPAN 207. Advanced Conversation. 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: 202. [3] (INT)

SPAN 208. Advanced Conversation Through Cultural Issues in Film. Spanish and Latin American films as the basis for discussion and analysis of linguistic, historic, cultural, and social issues. Students are expected to have completed at least one Spanish language course beyond 203. Prerequisite: 201W, 202, and 203. [3] (INT)

SPAN 209. The Spanish Language. An advanced grammar course with emphasis on problem constructions, stylistics, and composition. Offered only in the Vanderbilt in Spain program. [3] (INT)

SPAN 210. Spanish for the Legal Profession. 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: 201W, 202, and 203. [3] (INT)

SPAN 211. Spanish for the Medical Profession. Advanced conversation course incorporating linguistic skills and cultural information relevant to medical issues in the Hispanic world. Service learning with the Latino and Latina community as an important component. Prerequisite: 201W and 202. [3] (INT)

SPAN 212. Introduction to Spanish Linguistics. Major linguistic subsystems of the Spanish language. Morphology, syntax, phonetics and phonology. Semantics and pragmatics, dialectology, and sociolinguistics. No previous knowledge of linguistics required. No credit for students who earned credit for 295 section 1 in spring 2011. Prerequisite: 201W and 202. [3] (SBS)

SPAN 213. Translation and Interpretation. The art and practice of translation and interpretation dealing with materials from science, economics, politics, belles lettres, etc. Prerequisite: 201W and 202. [3] (SBS)

SPAN 214. Dialectology. 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: 201W and 202. [3] (SBS)

SPAN 215. Words and Stems. 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: 201W and 202. [3] (SBS)

SPAN 216. Phonology. Analysis of the production, nature, and systematic function of the sounds of the Spanish language, as well as of problems frequently experienced by non-native speakers. Both standard and dialect features of Spanish are examined. Prerequisite: 201W and 202. [3] (SBS)

SPAN 217. Contrastive Analysis of Spanish and English. 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: 201W and 202. [3] (SBS)

SPAN 218. Morphology and Syntax. 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: 201W and 202. [3] (SBS)

SPAN 219. History of the Spanish Language. 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: 201W and 202. [3] (SBS)

SPAN 220. The Languages of Spain. Origins, development, and the contemporary sociolinguistic situation of the principal languages and dialects of Spain, including Castilian, Catalan, Galician, and Basque. Prerequisite: 201W and 202. [3] (SBS)

SPAN 221. Spanish Civilization. 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: 201W and 202. [3] (INT)

SPAN 223. Spanish American Civilization. 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: 201W and 202. [3] (INT)

SPAN 226. Film and Recent Cultural Trends in Spain. The cinema and Spanish cultural evolution during and after the Franco dictatorship. Prerequisite: 203. [3] (INT)

SPAN 227. Film and Culture in Latin America. Latin American cinema from the perspective of cultural history; screenings and supplementary texts, including manifestos and critical readings. Prerequisite: 203. [3] (P)

SPAN 230. Development of Lyric Poetry. Popular and traditional forms; the sonnet and other Renaissance and Baroque classical forms. Romanticism. Prerequisite: 203. [3] (HCA)

SPAN 231. The Origins of Spanish Literature. 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: 203. [3] (HCA)

SPAN 232. Literature of the Spanish Golden Age. Representative works from early modern Spain, including poetry, prose, and drama of the Renaissance and Baroque periods. Prerequisite: 203. [3] (HCA)

SPAN 233. Spanish Literature from the Enlightenment to 1900. Essays and Neoclassic literature. Romanticism, Realism, and Naturalism. Representative works and authors from all genres. Prerequisite: 203. [3] (HCA)

SPAN 234. Spanish Literature from 1900 to the Present. Representative authors and works. Prerequisite: 203. [3] (HCA)

SPAN 235. Spanish American Literature from the Conquest to 1900. 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: 203. [3] (HCA)

SPAN 236. Spanish American Literature from 1900 to the Present. The works of Neruda, Borges, Paz, Garcia Márquez and others. Prerequisite: 203. [3] (HCA)

SPAN 237. Contemporary Lyric Poetry. From Modernism to the present in Spain and Spanish America. Prerequisite: 203. [3] (HCA)

SPAN 239. Development of the Novel. From the seventeenth century through Realism and Naturalism in Spain and Spanish America. Prerequisite: 203. [3] (HCA)

SPAN 240. The Contemporary Novel. New forms in the twentieth-century novel in Spain and Spanish America. Prerequisite: 203. [3] (HCA)

SPAN 243. Latino Immigration Experience. 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: 203. [3] (P)

SPAN 244. Afro-Hispanic Literature. From nineteenth-century slave narrative to modern writers such as Miguel Barnet, Alejo Carpentier, and Quince Duncan. Prerequisite: 203. [3] (P)

SPAN 246. *Don Quixote.* Directed reading and intensive study of the novel. Prerequisite: 203. [3] (HCA)

SPAN 247. Spanish-American Literature of the Boom Era. The Boom novel of the 1960s: Carlos Fuentes' *La muerte de Artemio Cruz,* Julio Cortázar's *Rayuela,* Mario Vargas Llosa's *La ciudad y los perros,* Guillermo Cabrera Infante's *Tres tristes tigres,* and Gabriel Garcìa Márquez's *Cien años de soledad.* Prerequisite: 203. [3] (HCA)

SPAN 248. Spanish-American Literature of the Post-Boom Era. The post-Boom novel from the 1970s to the present; analysis of related films. Manuel Muig's *Boquitas pintadas, Me llamo Rigoberta Menchú,* Laura Esquivel's *Coma agua para chocolate,* Reinaldo Arena's *Viaje a La Habana,* and Daisey Rubiera Castillo's *Reyita, sencillamente.* Prerequisite: 203. [3] (P)

SPAN 251. Development of Drama. Spanish theatrical works from 1600 to 1900, including the Golden age comedia, neoclassicism, romanticism, and early realism in drama. Prerequisite: 203. [3] (HCA)

SPAN 256. Love and Honor in Medieval and Golden Age Literature. 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: 203. [3] (HCA)

SPAN 258. Spanish Realism. Methods of, implications to, and pitfalls of creating realistic characters in nineteenth-century Spanish novels. Prerequisite 203. [3] (HCA)

SPAN 260. Development of the Short Story. From early manifestations in Spain through its current forms in Spain and Spanish America. Prerequisite: 203. [3] (HCA)

SPAN 274. Literature and Medicine. 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 203. [3] (P)

SPAN 275. Latina and Latin American Women Writers. Contemporary writing of women in Latin America and of Latinas in the United States. Representation of sexuality and the maternal body. Prerequisite: 203. [3] (P)

SPAN 280. Undergraduate Seminar. 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: 203. [3] (HCA)

SPAN 281. The Theory and Practice of Drama. Critical works and plays from different periods. Introduction to the principles of dramaturgy. Prerequisite: 203. [3] (HCA)

SPAN 282. Communicating Across Cultures. Relationships among discourse, identity, and culture. Linguistic construction of ethnicity and gender. Latin American and U.S. Latino ways of speaking. Serves as repeat credit for student who completed 295 section 1 in spring 2005 or spring 2008. [3] (SBS)

SPAN 283. Spanish in Society. 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: 203. [3] (SBS)

SPAN 285. Discourse Analysis. 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: 203. [3] (SBS)

SPAN 289. Independent Study. 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 289] (No AXLE credit)

SPAN 292. Images of the Feminine in Spanish Cinema. 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. Serves as repeat credit for students who completed 296 section 1 in summer 2007, summer 2008, and summer 2009. [3] (P)

SPAN 293. Contemporary Latin American Prose Fiction in English Translation. A study of major themes and techniques of the contemporary fiction in Spanish America and Brazil. [3] (HCA)

SPAN 294. Special Topics in Hispanic Literature. Prerequisite: 203. 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)

SPAN 295. Special Topics in Spanish Language and Linguistics. Prerequisite: 203. 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)

SPAN 296. Special Topics in Hispanic Culture. Prerequisite: 203. 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)

SPAN 299a. Senior Honors Thesis. [3] (No AXLE credit)

SPAN 299b. Senior Honors Thesis. [3] (No AXLE credit)

Theatre

THTR 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

THTR 100. Fundamentals of Theatre. An introduction to the various elements that combine to form a theatrical experience; the development of critical standards to judge these elements in performance. No credit for students who have earned credit for 115F. Repeat credit for students who have completed 100W. [3] (HCA)

THTR 100W. Fundamentals of Theatre. An introduction to the various elements that combine to form a theatrical experience; the development of critical standards to judge these elements in performance. No credit for students who have earned credit for 115F. Repeat credit for students who have completed 100. [3] (HCA)

THTR 110. Introduction to Theatrical Production. Contemporary concepts, methods, and practices employed in the planning and implementation of stage scenery and lighting. Communication, creative problem solving, and organizational management through research, lecture, and class discussion. [4] (HCA)

THTR 111. Fundamentals of Theatre Design. Roles and skills of scenic, costume, and lighting designers. Critical assessment of design quality. Elements and principles of design, script analysis, dramaturgical and visual research, color theory and practice. [4] (HCA)

THTR 115F. First-Year Writing Seminar. Topics Vary. [3]

THTR 171. Marshals, Mobsters, Monsters, Magnums, and Musicals: American Movie Genres. Western, gangster, horror, private eye, and musical genres. Representative films from each category reflecting the evolution of the genre and the changing American landscape. [3] (US)

THTR 201. The Development of Drama and Theatre I. Aeschylus to 1642. Prerequisite: at least sophomore standing. [3] (INT)

THTR 202W. The Development of Drama and Theatre II. 1642 to 1865. Prerequisite: at least sophomore standing. [3] (INT)

THTR 204. Development of the American Theatre. Colonial period to the present. Reading of selected plays. Prerequisite: at least sophomore standing. [3] (US)

THTR 206W. Contemporary Drama and Performance Criticism. Dramatic literature and performance theory. Advanced techniques in writing performance criticism. No credit for students who have earned credit for 203. Prerequisite: at least sophomore standing and 100, 100W, or 115F. [3] (P)

THTR 211. Rehearsal-Production. Students performing major technical assignments in university theatre productions may receive 1 credit hour per assignment at the discretion of the technical director. Detailed plans of expected work and full reports on all crew sessions are to be submitted. May be repeated for a total of 3 credits, but students may earn only up to 2 credits per semester of enrollment. Prerequisite: consent of instructor. [1-2; maximum of 3 credits total for all semesters of THTR 211] (No AXLE credit)

THTR 212. Elements of Basic Design: Scenery and Properties. Aesthetics and processes. Development and communication of design ideas through script analysis, research, virtual and physical model-building. Contemporary scenic practices. Prerequisite: 110 and 111. [3] (HCA)

THTR 213. Elements of Basic Design: Lighting and Sound. 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: 110 and 111. [3] (HCA)

THTR 214. Elements of Basic Design: Costuming and Makeup. Aesthetics and processes. Development and communication of design ideas through the drawing and rendering of the costumed figure. Prerequisite: 110 and 111. [3] (HCA)

THTR 216. The History of Fashion: Sex and Propaganda. Men's and women's fashion from ancient times to the present. Women's roles in society as reflected in their clothing. [3] (P)

THTR 218. Management in the Theatre. Roles of theatre and stage managers. Tools and methods. Organizational theories and skills. Prerequisite: 110. [3] (HCA)

THTR 219. Acting I. 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)

THTR 220. Acting II. The actor's role in the theatre with emphasis on acting as character interpretation and ensemble performance through analysis and scene study. Offered on a graded basis only. Prerequisite: 219. [3] (HCA)

THTR 221. Rehearsal-Acting. Students performing major roles in university theatre productions may receive 1 credit hour per role at the discretion of the director. Full character analysis and periodic reports of rehearsal progress are required. Prerequisite: 220. May be repeated for a total of 3 credits, but students may earn only up to 2 credits per semester of enrollment. [1-2; maximum of 3 credits total for all semesters of THTR 221] (No AXLE credit)

THTR 223. Problems of Acting Style. Advanced scene study, investigating methods used today to perform drama of past eras which used nonrealistic styles. Offered on a graded basis only. Prerequisite: 220. [3] (HCA)

THTR 225. Playwriting. Instruction in writing plays with critical attention to dramatic themes and characterization. Prerequisite: 100, 100W, or 115F and consent of the instructor. [3] (HCA)

THTR 230. Play Direction. Play direction as an aid to critical understanding and appreciation of the theatre. Development of techniques. Prerequisite: 219. [3] (HCA)

THTR 231. Intermediate Play Direction. Development of theoretical and practical approaches to directing dramatic texts. Emphasis on research, interpretation, and communication. Prerequisite: 230. [3] (HCA)

THTR 232. Shakespeare in the Theatre. Selected plays and scenes. Theoretical and practical exploration of script, theatre, and audience in terms of production past and present. Prerequisite: at least junior standing. [3] (HCA)

THTR 261. Senior Seminar: Performance Ensemble. Advanced development of artistic, communicative, and organizational skills required to create theatre. Culminates in a public performance. Open to senior majors only. Prerequisite: 100, 100W, or 115F; 110; 111; 219; and 230. [3] (HCA)

THTR 280. Theatre in London. An intensive overseas summer study program in contemporary British theatre. In London students attend more than ten productions covering a broad spectrum of theatrical offerings, and weekly seminars with artists and administrators from the British professional stage. Prerequisite: 100, 100W, or 115F. [3] (P)

THTR 289. Independent Study. A research project in selected aspects of theatre and drama to be arranged with the instructor. [Variable credit: 1-3] (No AXLE credit)

THTR 294. Selected Topics in Theatre. 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)

THTR 299a. Senior Honors Thesis. 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)

THTR 299b. Senior Honors Thesis. 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)

Women's and Gender Studies

WGS 099. Commons Seminar. Topics vary. [1] (No AXLE credit)

WGS 115F. First-Year Writing Seminar. Topics Vary. [3]

WGS 150. Sex and Gender in Everyday Life. 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 150W. [3] (P)

WGS 150W. Sex and Gender in Everyday Life. 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 150. [3] (P)

WGS 200. Women in Popular Culture. Gender differentiation in popular culture and consumer products. Portrayal of women in movies, print, music, and the Internet. The sources and effects of these portrayals. Women as both consumers and consumed. Prerequisite: 150 or 150W. [3] (HCA)

WGS 201. Women and Gender in Transnational Context. 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: 150 or 150W. [3] (P)

WGS 212. Lesbian, Gay, Bisexual, and Transgender Studies. Introductory study of sexual identity, queer theory, relationships, politics. Prerequisite: 150 or 150W. [3] (HCA)

WGS 226. Gender, Race, and Class. How different societies use the categories of gender, race, and class to make distinctions among their members. How these categories intersect and mediate one another and contribute to inequalities in the distribution of political power, social well-being, and material and symbolic resources. Prerequisite: 150 or 150W. [3] (P)

WGS 240. Introduction to Women's Health. 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. Prerequisite: 150 or 150W. [3] (P)

WGS 242. Women Who Kill. Comparison between classical and contemporary views. Adjudication of women who kill. Prerequisite: 150 or 150W. [3] (P)

WGS 243. Sociologies of Men and Masculinity. 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: 150 or 150W. [3] WGS 246W. Women's Rights, Women's Wrongs. Intellectual and theoretical foundations for contemporary feminist theory and politics in the United States, based upon works by nineteenth- and twentieth-century authors. Prerequisite: 150 or 150W. [3] (US)

WGS 248. Humor and Cultural Critique in Fannie Flagg's Novels. Humor used to address cultural issues in Southern small-town America from 1920-1970. Gender, race, community, and feminism in Fannie Flagg's novels. Prerequisite: 150 or 150W. [3] (P)

WGS 249. Women and Humor in the Age of Television. 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: 150 or 150W. [3] (HCA)

WGS 250. Contemporary Women's Movements. 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 250W. Prerequisite: 150 or 150W. [3] (P)

WGS 250W. Contemporary Women's Movements. 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 250. Prerequisite: 150 or 150W. [3] (P)

WGS 252. Sex and Scandals in Literature. 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)

WGS 259. Reading and Writing Lives. 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 259W. Prerequisite: 150 or 150W. [3] (HCA)

WGS 259W. Reading and Writing Lives. 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 259. Prerequisite: 150 or 150W. [3] (HCA)

WGS 261. Gender and Law in Classical Antiquity. Social values reflected in Greek and Roman law and literature. Homer, Sophocles, Euripides, and Ovid. Repeat credit for students who have completed 261W. Prerequisite: 150 or 150W. [3] (HCA)

WGS 261W. Gender and Law in Classical Antiquity. Social values reflected in Greek and Roman law and literature. Homer, Sophocles, Euripides, and Ovid. Repeat credit for students who have completed 261. Prerequisite: 150 or 150W. [3] (HCA)

WGS 266. Bodies of Law. Legal regulation of sex, gender, and the body. Reproductive rights, rape and domestic violence, trafficking of women and girls, discrimination and hate crimes, and pornography. Prerequisite: 150 or 150W. [3] (P)

WGS 267. Seminar on Gender and Violence. 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. Prerequisite: 150 or 150W. [3] (P)

WGS 268. Gender, Race, Justice, and the Environment. Gender and racial aspects of environmental degradation. Risk, activism, health and illness, policy and politics. Prerequisite: 150 or 150W. [3] (SBS)

WGS 270. Ecofeminism: Theory, Politics, and Action. 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)

WGS 271. Feminist Legal Theory. 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: 150 or 150W. [3] (P)

WGS 272. Feminism and Film. Images of gender and race; techniques, sound, lighting, cinematography in relation in gender. Prerequisite: 150 or 150W. [3] (US)

WGS 273. Seminar on Psychoanalysis and Feminism. Historical and contemporary perspectives on the long and ambivalent relationship between psychoanalysis and feminism. Trauma, hysteria, narcissism, gender, and the family. Prerequisite: 150 or 150W. [3] (P)

WGS 281. Globalization and Policy-Making. Western historical conceptualizations of the state. Socio-political contexts. Prerequisite: 150 or 150W. [3] (INT)

WGS 288a. Internship Training. 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 288b and/or 288c. These hours may not be included in the minimum hours required for the women's and gender studies major. Prerequisite: 201 and one other 200-level Women's and Gender Studies course, and a 2.90 grade point average. Corequisite: 288b and/or 288c. [1-9] (No AXLE credit)

WGS 288b. Internship Research. 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: 201 or 224 and one other 200-level Women's and Gender Studies course, and a 2.90 grade point average. Corequisite: 288a. [Variable credit: 1-3] (No AXLE credit)

WGS 288c. Internship Readings. 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: 201 or 224 and one other 200-level Women's and Gender Studies course, and a 2.90 grade point average. Corequisite: 288a. [Variable credit: 1-3] (No AXLE credit)

WGS 289. Independent Study. 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: 150 or 150W. 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 289] (No AXLE credit)

WGS 291. Senior Seminar. Advanced reading and research. Prerequisite: 150 or 150W. [3] (No AXLE credit)

WGS 294a. Special Topics: Topics in Gender, Culture, and Representation. Topics vary. Prerequisite: 150 or 150W. 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)

WGS 294b. Special Topics: Topics in Gender, Society, and Political Economy. Topics vary. Prerequisite: 150 or 150W. 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)

WGS 295. Selected Topics. Topics vary. Prerequisite: 150 or 150W. 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)

WGS 298. Honors Research. 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 298] (No AXLE credit)

WGS 299. Honors Thesis. 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 299] (No AXLE credit)

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MOLLY THOMPSON, M.A., Registrar, College of Arts and Science
MELISSA WOCHER, B.A., Assistant to the Dean
HANK KEELING, B.A., Administrative Officer

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HOUSTON A. BAKER, JR., University Distinguished Professor of 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
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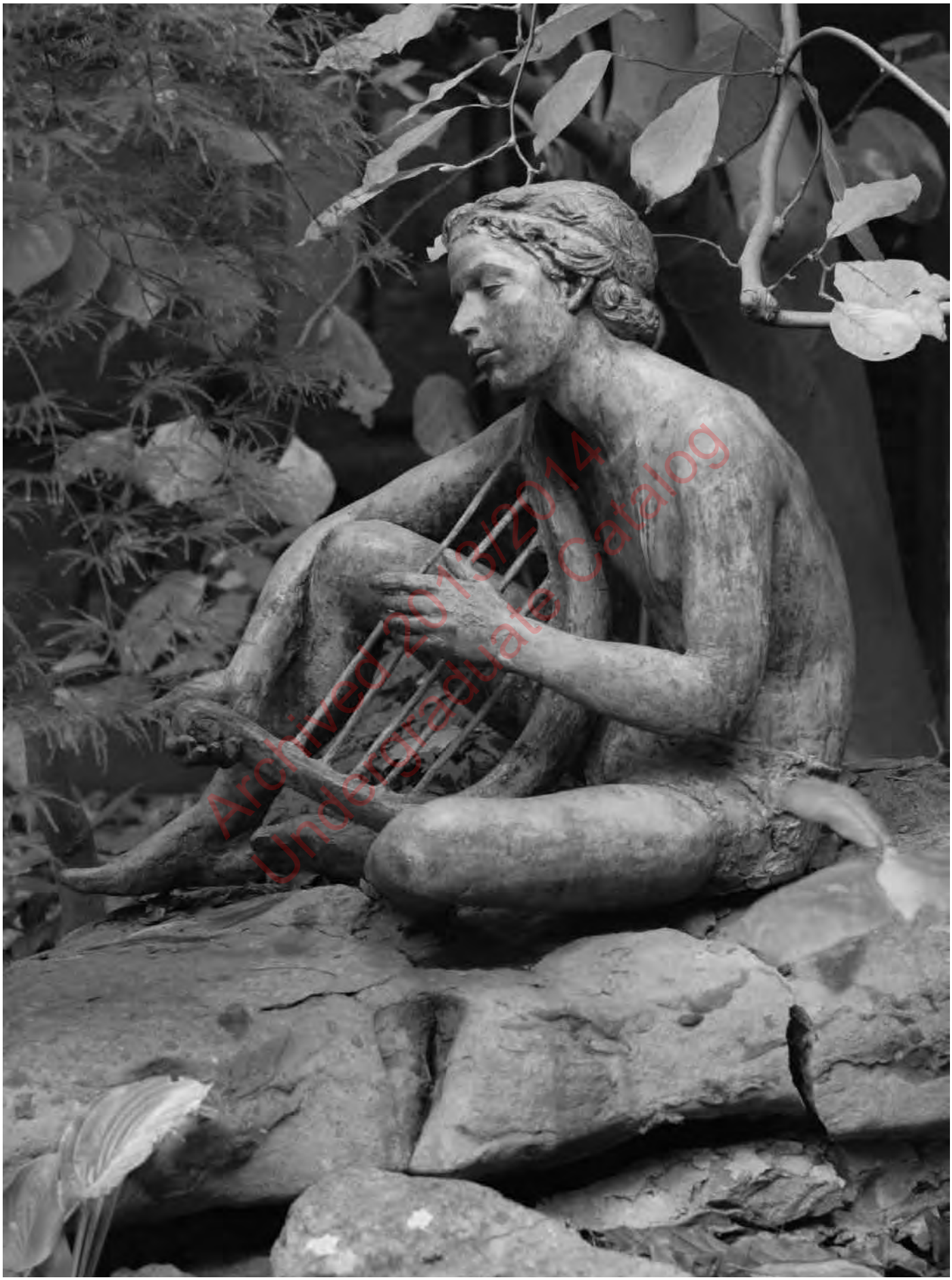

Blair School of Music

B

Music at Vanderbilt

BLAIR School of Music serves as the focal point at Vanderbilt for the study of music as a human endeavor and as a performing art. The school contributes to the quality of life at the university through concerts, lectures, and recitals by faculty, students, and visiting artists, scholars, and composers, and through course offerings in performance, music literature/history, composition, and theory. In an age of increasing technology and social complexity, music offers to persons of all ages a vital medium for the expression of the human spirit.

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 degree in performance were initiated in 1986.

Knowing the importance of a balanced education in music, Blair School subsequently expanded its Bachelor of Music degree program to include majors in composition/theory and musical arts. The major in composition/theory emphasizes analytical skills as well as the development of students' creativity. The major in musical arts is the school's most flexible program; it lays a solid foundation in the art of music, with equal preparation in the three basic disciplines of performance, theory, and music literature/history. The musical arts major also forms the basis for a five-year program in teacher education offered cooperatively with Peabody College. 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 Blair degree programs are accredited by the National Association of Schools of Music (NASM).

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 history, 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, and musicologists are among the most respected in their fields. Their 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.

The Faculty Ensembles

Blair String Quartet

Founded in 1967, the Blair String Quartet is the nucleus of the string department. Its members provide private instruction and coach chamber music ensembles and performance classes. The quartet performs throughout the United States.

Blair Woodwind Quintet

The Blair Woodwind Quintet forms the core of the wind department at Blair. Established in 1971, the ensemble concertizes regularly throughout the United States. Members of the quintet provide private instruction, coach chamber music ensembles, conduct woodwind seminars, and teach orchestral repertoire classes.

Blair Brass Quintet

The Blair Brass Quintet serves as a focal point for the brass faculty at Blair. Its members provide private instruction, coach chamber ensembles, conduct brass seminars, and teach orchestral repertoire classes.

Blakemore Trio

Founded in 2002, the Blakemore Trio is Blair's newest faculty ensemble. Its members teach privately, coach chamber music, and hold performance classes at Blair. The trio performs throughout the United States.

Facilities

The Blair building incorporates innovative developments in acoustical design and engineering. It contains teaching studios and faculty offices, state-of-the-art computer learning stations, classrooms, rehearsal halls, practice rooms, library, administrative offices, MIDI piano labs with individual computer workstations, and three concert venues. The 278-seat Steve and Judy Turner Recital Hall—the focal point of the original facility (1980)—is the locus for student recitals and concerts and master classes by faculty members and visiting artists held on a regular basis. Opened in spring 2002, the 620-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 Choral Hall, which seats sixty, was upgraded to a recital space during summer 2007. The building's total square footage, nearly tripled in 2002, is 131,000. Building hours are 7 a.m. to 9 p.m. Office hours are 8 a.m. to 5 p.m.

The Anne Potter Wilson Music Library is a division of the Jean and Alexander Heard Library system. 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 8,000-square-foot library holds more than 75,000 books, scores, sound and video recordings, and subscriptions to more than 150 journals. It is equipped with a seminar room, exceptional listening and viewing stations, and study facilities.

Accreditation

All programs leading to the B.Mus. degree are accredited by the National Association of Schools of Music, 11250 Roger Bacon Drive, Suite 21, Reston, VA 20190-5248; telephone: (703) 437-0700.

Classes for the General Student

The Blair School of Music welcomes the general student into its classes and studios. A large number of courses are designed specifically for non-majors. Many classes are held in Sarratt Cinema 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. These are listed by course numbers in each school's/college's section of this catalog, where requirements outlining Arts and Science AXLE, Engineering liberal arts core, or Peabody liberal education core requirements are given. Requirements and the courses which fulfill them differ for each Vanderbilt school.

Courses of particular interest to the general student are:

*First-Year Writing Seminars**

Music and Global Health	MUSL115F [W, INT]
Music and Modernism	MUSL115F [W, HCA]
Shakespeare and Music	MUSL115F [W, HCA]

Music Composition and Theory

Techniques of Choral Composition	MUSC 223
Mozart	MUSC 118
Music Theory (Survey of)	MUSC 120A–120B
Nashville Number System, The	MUSC 104
Songwriting and Elements of Music Theory	MUSC 100
Songwriting II	MUSC 102

*Music Literature and History**

African Music	MUSL 171 [INT]
American Music	MUSL 147 [US]
American Popular Music	MUSL 149 [US]
Art Music of the United States after 1900	MUSL 245 [HCA]
Blues, The	MUSL 151 [US]
Choral Music (Survey of)	MUSL 145 [HCA]
Concerto, The	MUSL 143 [HCA]
Country Music	MUSL 152 [US]
Exploring the Film Soundtrack	MUSL 264 [US]
Introduction to Music Literature	MUSL 140 [HCA]
Jazz (Survey of)	MUSL 148 [US]
Love and Death in Music	MUSL 184 [HCA]
Music and the Fall of Segregation	MUSL 154 [HCA]
Music City Museums and Memorabilia	MUSL 265 [HCA]
Music, Gender, and Sexuality	MUSL 201 [HCA]
Music, Identity, and Diversity	MUSL 261 [P]
Music in Latin America and the Caribbean	MUSL 250 [INT]
Music of the South	MUSL 262 [US]
Music, the Arts, and Ideas	MUSL 183 [HCA]
Musical Theatre in America	MUSL 103 [HCA]
Opera	MUSL 221A,B [HCA]
Rock Music (History of)	MUSL 153 [HCA]
Symphony, The	MUSL 144 [HCA]
Women and Music	MUSL 200 [P]
Women and Rock Music	MUSL 253 [HCA]
World Music	MUSL 160 [INT]

Other Courses

Building Communities through Music and the Arts	MUSO 106
Creating Mission-Driven Arts and Social Programming	MUSO 107
Business of Music, The	MUSO 100
Computer Recording Technology Seminar	MUSO 102
Music Internships	MUSO 280A, 280B, 280C

*The bracketed letters indicate categories of the Arts and Science AXLE curriculum, which may also be verified in the Arts and Science section of the catalog. These designations are as follows: Humanities and the Creative Arts [HCA]; International Cultures [INT]; History and Culture of the United States [US]; Social and Behavioral Sciences [SBS]; and Perspectives [P].

Composition/Theory, Musicianship, and Keyboard Harmony

Courses designed for the general university student (MUSC 100, 102, 104, 118, 120A–120B) focus on the recognition of stylistic and structural patterns. This skill enhances the non-technical listener's awareness—both analytical and affective—of creative expression in music.

The music theory and musicianship sequence (MUSC 170-170E, 171-171E, 172-172E, 173-173E) introduces serious students of music, whether majors or not, to the principles of harmony, voice-leading, counterpoint, structure, and analytical/ compositional techniques in a variety of historical styles; further, it fosters the all-important skills of hearing tonal relationships with facility and of communicating orally the structures and materials of music.

Ensembles

The Blair School of Music sponsors several major performing ensembles, including the Vanderbilt Symphonic Choir, Chamber Choir, the instrumental ensembles (encompassing Percussion Ensemble, Orchestra, Wind Ensemble, and contemporary ensembles), Opera Theatre, and Jazz Band. Other non-western and vernacular ensembles, such as African Performing Ensemble, the Steel Drum/Pan Ensemble, and Fiddle 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. Students must audition every semester unless excused. Assignment is at the discretion of the director. Openings at mid-year are not guaranteed. 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 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.

Music Literature and History

Courses in the literature and history of music are designed to develop students' understanding of music within the prevailing social and cultural contexts; to establish a framework for critical evaluation of music and musical practices; to achieve a working familiarity with recognized, or at least representative, masterworks of musical literature; to develop students' ability to speak articulately about the styles and substance of music; and to equip students with analytic and literary skills and with a working knowledge of the bibliography of music.

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, dulcimer, mandolin, saxophone, euphonium, fiddle, banjo, steel drum/pan, and voice. Credit is flexible, but beginning students may register for only 1 credit hour. Students contract with the private instructor regarding lesson length and practice hours and can earn either 1 or 2 credit hours each semester. Students in the School of Engineering can count 3 hours of performance instruction (or ensembles) towards liberal arts core requirements. For others, performance is elective credit. Group instruction is offered in piano, guitar, fiddle, steel pan/drum, 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 $675.00 per semester for one 50-minute lesson 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 instruction through 100- and 200-level offerings. Students from outside of the B.Mus. program enroll through 100-level study. 200-level courses are open only to B.Mus. students in their junior and senior year.

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 hour.
- 60-minute lessons with 10 hours minimum weekly practice earn 2 credit hours.

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 courses numbered MUSP 171–198, fees per semester are as follows:

	Elective Credit / Non–Blair Students	2nd Majors and Minors
One 30-minute lesson weekly	$ 870	$435
One 45-minute lesson weekly	$1,225	$610
One 60-minute lesson weekly	$1,535	$770

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

Music Minors

Students may elect one of three minors: music, music history, or music performance. Formal admission to the general minor, the performance minor, or 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 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.
MUSC 120A–120B; *or* 170-170E and 171-171E

Music Literature/History. 12 hours.
MUSL 121W *or* 140
One course chosen from: MUSC 294, MUSL 115F-02 (Shakespeare and Music), 143, 144, 145, 221-238, 242, 243, 244, 247, 256, and, with approval of department chair, 294.
One course chosen from: MUSL 115F-01 (Music and Global Health), 115F-03 (Music and Modernism), 160, 171, 200, 201, 221-238, 245, 250, 261, and 294.
One course chosen from: MUSC 294 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, or voice).
Students must meet minimum standards and obtain the approval of the appropriate department chair (brass/percussion, guitar/harp, keyboard, strings, voice, woodwinds). Declaration forms are available in the Blair office and online at *blair.vanderbilt.edu/academics.*

Ensemble. 2 hours (2 different semesters).
Participation for two semesters (or four modules) in an appropriate performing ensemble, after consultation with the minor adviser.

Music History Minor. 18 or 19 hours.

Music Theory. 6 or 7 hours.
MUSC 120A–120B; *or* 170-170E and 171-171E

Music Literature/History. 12 hours.
MUSL 121W*, 122, one course from 221-238, and 239.

*Students who have completed MUSL 140 must substitute another course for MUSL 121W, selected from MUSL 103, 143, 144, 145, 147, 148, 149, 151, 152, 153, 160, 171, 183, 200, 201, 221-238, 245, 250, 253, 261, 262, 264, 265, or 294.

Music Performance Minor. 25 or 26 hours.

Music Theory. 6 or 7 hours.
MUSC 120A–120B; *or* 170-170E and 171-171E

Music Literature/History. 6 hours.
MUSL 121W *or* 140
One course chosen from MUSL 221-238

Performance. 11 hours.
Individual instruction in a single instrument for at least 6 semesters (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 11 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 (or four modules) in an appropriate performing ensemble, as assigned following audition. String, woodwind, brass, percussion, and harp students must audition for MUSE 101, Instrumental Ensemble. Guitar and voice students must audition for MUSE 101A, Symphonic Choir. Keyboard students must participate as a pianist for one semester in MUSE 102, 201B, 201D, 202D, 221, 222, or 223; or in 100A, 101, 101A, 101F, 101G, 201A, or 210, contingent upon permission of the ensemble instructor and the piano instructor.

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. Following interviews with the appropriate performance department, students plan their studies with Blair adviser Professor Carl Smith, 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.
MUSC 170-170E, 171-171E, 172-172E, 173E.

Music Literature/History. 9 hours.
MUSL 121W*, 122, 239.

*Students who have completed MUSL 140 must take an additional course instead of MUSL 121W, selected from MUSL 221-238.

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, with the required 6 hours at a level beyond that minimum. Representative repertoire lists reflecting minimum performance standards and required declaration forms are available online at *blair.vanderbilt.edu/academics* or from either the Blair office or Professor Carl Smith, coordinator of the program.

Ensemble. 2 hours (two different semesters).
Participation for two semesters (or four modules) in an appropriate performing ensemble, as assigned following audition. String, woodwind, brass, percussion, and harp students must audition for MUSE 101, Instrumental Ensemble. Guitar and voice students must audition for MUSE 101A, Symphonic Choir. Keyboard students must participate as a pianist for one semester in MUSE 102, 201B, 201D, 202D, 221, 222, or 223; or in 100A, 101, 101A, 101F, 101G, 201A, or 210, contingent upon permission of the ensemble instructor and the piano instructor.

Elective. 2–3 hours.
One course in music theory, literature/history, or conducting, chosen from MUSC 173, 223, 224, 225, 248, 251, 261, 294; any MUSL; MUSO 161, 261.

The Degree Program

The bachelor of music degree program includes four different majors: performance, composition/theory, musical arts, and the musical arts/teacher education track. The performance major is available in any orchestral instrument, piano, organ, classical guitar, saxophone, euphonium, and voice. The composition/theory major emphasizes both the creation and analysis of music. The musical arts major provides a solid foundation in the art of music and includes equal preparation in the three basic disciplines—theory, literature/history, and performance. Students, excepting musical arts/teacher education majors, may complete an optional concentration in collaborative arts, composition, literature/history, pedagogy, or theory. The musical arts/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. Through a joint B.Mus./ MBA program, interested students in the musical arts major have an opportunity to compress both the bachelor of music 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.

Bachelor of Music Degree Requirements

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 (41 credit hours minimum) includes music theory, musicianship, keyboard harmony, music literature, conducting, 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.*

Requirements by Major Area

BRASS PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 10 hours minimum
MUSE 101 (every semester in residence); MUSE 206, 221, 225 or 226 (four semesters, 1/2 credit minimum each semester, taken both semesters of freshman year, with two additional courses taken during career). 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)
MUSR 176-179, 190; 276-279; 290

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSO 110A, 110B, 111A, or 111B (every semester in residence); MUSR 295, 299

OTHER MUSIC. MUSO 152, 252

LIBERAL ARTS. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

COMPOSITION/THEORY

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 8 hours minimum (every semester and every module 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; 2 semesters chosen from any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice or MUST 101-104; 1 semester chosen from MUSP 171-198 or MUSO 133.

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

COMPOSITION/THEORY. MUSC 141, 142, 143, 144, 230, 241A–241D
Students rotate instructors as assigned for MUSC 141-144 to gain experience with 4 different members of the department. Students may select one or more instructors of choice in their junior and senior years.

OTHER MUSIC. MUSO 111C (every semester in residence); MUSC 225, 228 (or 229, if pre-2011), 299

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: 200-level art history, 200-level English, 200-level philosophy; a total of 33 hours, rather than 30, in liberal arts. (see full requirements below)

FREE ELECTIVES. To complete 126 hours

GUITAR PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 8 hours minimum (every semester and every module in residence)
MUSE 100A, 101A, or 201A (two semesters or four modules), 204 (two semesters), and 201D, 204, or 221 (four semesters). Students must audition for symphonic choir 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.

INDIVIDUAL PERFORMANCE INSTRUCTION. 32 hours, 8 semesters (every semester in residence)
MUSR 188; 288

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSO 109E (every semester in residence), MUSR 295, 299

OTHER MUSIC. MUSO 258, 268

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

HARP PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 10 hours minimum
MUSE 101 (every semester in residence); MUSE 209 or 221 (four semesters, 1/2 credit minimum each semester, taken both semesters of freshman year, with two additional courses taken during career). 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)
MUSR 181; 281

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSR 295, 299

OTHER MUSIC. MUSO 254a

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

MUSICAL ARTS

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 8-10 hours (every semester and every module 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 101 (including four semesters of MUSE 206, 207, 209, 210, 215, 221, 223, 224, 225, or 226, ½ credit minimum each semester, taken both semesters of freshman year, with two additional courses taken during career); and three semesters ensemble of choice.

Guitar—(8 hours) Two semesters MUSE 100A, 101A, or 201A, two semesters 204, one semester 100A, 101A, 201A, 201D, 204, or 221, and three semesters ensemble of choice.

Organ—(8 hours) Three semesters of conducted choral ensemble, one semester of MUSE 102, one semester of 201B, one semester of 222, and two semesters ensemble of choice.

Piano—(8 hours) One semester chosen from MUSE 100A, 101A, 201A, 101, 101F, or other approved conducted choir; one semester of 102; three semesters of 201B, 201D, 221, 222, or 223; three semesters ensemble of choice with adviser's approval.

Voice—(8 hours) Eight semesters MUSE 101A or 201A; during fall module B, choice of MUSE 100A or 101F or (if demonstrated schedule conflict exists) 201D.

INDIVIDUAL PERFORMANCE INSTRUCTION. 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

COMPOSITION/THEORY. MUSC 223, 224, 225, 226, 227, 230, 248, 251, 261, 280, or 294 (2-3 hours)

LITERATURE/HISTORY. 9 hours MUSL courses in addition to the MUSL core courses, at least 6 of which are chosen from MUSL 103, 115F, 147, 171, 183, 200, 201, 221-238, 245, 247, 250, 252, 253, 261, 262, 289, 294, 298, 299AB

PERFORMANCE. Performance class every semester in residence if offered (MUSO 109A, 109B, 109C, 109D, 109E, 109F, 109G, 109L, 110A, 110B, 110D, 110E, 110F, 110G, 111A, 111B)

MUSIC ELECTIVES. To complete a minimum of 80 hours in music.

LIBERAL ARTS. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

MUSICAL ARTS/TEACHER EDUCATION, INSTRUMENTAL/GENERAL

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 9 hours minimum (every semester and every module in residence) Instrumental ensemble and co-requisite chamber music are required both semesters of freshman year, and a total of six semesters of conducted ensemble (chosen from MUSE 100A, 101, 101A, or 201A) and two semesters of small ensemble is required. Instrumentalists must have experience in orchestra, wind ensemble, jazz ensemble (as appropriate), and chamber music, with ensemble enrollment required every semester and every module in residence. Pianists must be accepted in MUSE 101, 101A, or 201A by the beginning of the second semester. During study abroad, a student could choose to waive an ensemble of choice. Auditions for major ensembles are required each semester until requirements are fulfilled. Assignment to ensembles is at the discretion of the directors.

INDIVIDUAL PERFORMANCE INSTRUCTION. 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

COMPOSITION/THEORY. MUSC 224, 230

LITERATURE/HISTORY. MUSL 147; choice of MUSL 171, 200, 201, 250, or 261; choice of MUSL 103, 183, or 221-238.

PERFORMANCE. Performance class on primary instrument (except harp) every semester. Secondary instrument(s) three semesters (may include Intro to Guitar MUSP 104A or Classroom Instruments MUST 105, but no more than 1 semester in the area of the major instrument; may include voice). Secondary Instrument Lab MUST 107 one semester. Child and Adolescent Voices MUST 106. Senior Recital MUSR 299.

OTHER MUSIC. Instrumental Conducting MUSO 262.
Note: Conducting study must include two different professors.

TEACHING. Class Instruments MUST 101, 102, 103, 104. Practica in Music Teaching MUST 250A, 250B, 250C. Two seminars chosen from MUST 211-216.

LIBERAL ARTS. 30 hours (and 9 hours listed above in Literature/History)

English/Writing: 6 hours, including MUSL 121W and choice of AP/IB English credit, any ENGL, or any writing course (any W in the English language, any 115F, or ENGL 100; must be from outside of music).

Humanities: 6 hours, including MUSL 122 and 3 hours in art history, humanities, language, philosophy, or religious studies. (6 additional hours of humanities credit are counted above in Literature/History.)

History and Social Science: 6 hours, including 3 hours American History and 3 hours in a social science discipline other than history chosen from Anthropology, Economics, Political Science or Sociology. (3 additional hours of history and social science credit are counted above in Literature/History.)

Mathematics and Natural Science: 6 or 7 hours, including 3 hours math, chosen from statistics (Econ 150, Math 127ab, Math 180, Psy 2101 [Peabody]) or calculus (Math 140-179); and 3 or 4 hours any science course with a lab.

Academic Electives: 6 hours, specifically Education 1020 and Special Education 1010. (see full requirements below)

FREE ELECTIVES. To complete 126 hours

MUSICAL ARTS/TEACHER EDUCATION, VOCAL/GENERAL

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 8 hours minimum (every semester and every module in residence) 6 semesters large ensemble (MUSE 100A, 101, 101A, 201A) and 2 semesters small ensemble. Pianists, vocalists, and guitarists must have experience accompanying. All students must have ensemble experience on their secondary instrument. 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.

INDIVIDUAL PERFORMANCE INSTRUCTION. 16 hours, 8 semesters (every semester in residence)

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

COMPOSITION/THEORY. MUSC 230 and choice of 223 or 224

LITERATURE/HISTORY. MUSL 147; choice of MUSL 171, 200, 201, 250, or 261; choice of MUSL 103, 183, or 221-238.

PERFORMANCE. Performance class on primary instrument every semester if offered. Secondary instrument 4 semesters (voice for pianists and organists, piano for singers, voice or piano for guitarists or other instrumentalists). Child and Adolescent Voices MUST 106 (singers substitute Diction: English and Italian MUSO 159). Intro to Guitar, MUSP 104A (guitar majors exempt). Senior Recital MUSR 299

OTHER MUSIC. Choral Conducting MUSO 263

TEACHING. Teaching: Intro to Classroom Instruments MUST 105; Practica in Music Teaching MUST 250A, 250B, 250C. Two seminars chosen from MUST 211-216.

LIBERAL ARTS. 30 hours (and 9 hours listed above in Literature/History)

English/Writing: 6 hours, including MUSL 121W and choice of AP/IB English credit, any ENGL, or any writing course (any W in the English language, any 115F, or ENGL 100; must be from outside of music).

Humanities: 6 hours, including MUSL 122 and 3 hours in art history, humanities, language, philosophy, or religious studies. (6 additional hours of humanities credit are counted above in Literature/History.)

History and Social Science: 6 hours, including 3 hours American History and 3 hours in a social science discipline other than history chosen from Anthropology, Economics, Political Science or Sociology. (3 additional hours of history and social science credit are counted above in Literature/History.)

Mathematics and Natural Science: 6 or 7 hours, including 3 hours math, chosen from statistics (Econ 150, Math 127ab, Math 180, Psy 2101 [Peabody]) or calculus (Math 140-179); and 3 or 4 hours any science course with a lab.

Academic Electives: 6 hours, specifically Education 1020 and Special Education 1010. (see full requirements below)

FREE ELECTIVES. To complete 126 hours

ORGAN PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 8 hours minimum (every semester and every module in residence) MUSE 100A, 101A, or 201A (four semesters); 201B (one semester); 201B, 201D, 221 or 222 (one semester); and ensemble of choice (two semesters). 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)
MUSR 187; 287

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSR 295, 299

OTHER MUSIC. MUSO 257, 267

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

PERCUSSION PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 10 hours minimum
MUSE 101 (every semester in residence); MUSE 210, 215, or 221 (four semesters, 1/2 credit minimum each semester, taken both semesters of freshman year, with two additional courses taken during career). 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)
MUSR 180; 280

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSO 110G (every semester in residence), MUSR 295, 299

OTHER MUSIC. MUSO 153, 253a or 253b

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

PIANO PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 133A-133B

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 8 hours minimum (every semester and every module in residence) MUSE 102 (one semester), 201B (one semester), 222 (one semester), conducted ensemble 100A, 101A, 201A, 101, 101F, or other approved conducted choir (one semester), and choice of 100A, 101, 101A, 101F, 131, 201A, 201B, 201D, 221, 222, or 223 (four semesters). Participation in 101 or 101F 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)
MUSR 186; 286

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSO 109D (every semester in residence), MUSR 295, 299

OTHER MUSIC. MUSO 256a, 256b, 266

LIBERAL ARTS CORE. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

STRING PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 10 hours minimum
MUSE 101 (every semester in residence); MUSE 221, 223, or 224 (four semesters, 1/2 credit minimum each semester, taken both semesters of freshman year, with two additional courses taken during career). All students except double bass majors must have experience in string quartet (MUSE 224). 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)
MUSR 182-185; 282-285

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSO 109B, 109G, 109C, or 109L (every semester in residence); MUSR 295, 299

OTHER MUSIC. MUSO 254a

MUSIC ELECTIVES. To complete minimum of 80 hours in music

LIBERAL ARTS. 30 hours (see full requirements below)

FREE ELECTIVES. To complete 126 hours

VOICE PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 8 hours minimum (every semester and every module in residence) Eight semesters MUSE 101A or 201A; during fall module B, choice of MUSE 100A or 101F or (if demonstrated schedule conflict exists) 201D. 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. 28 hours, 8 semesters (every semester in residence)
MUSR 189; 289

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSP 186 (two semesters); MUSO 109F (every semester in residence),
MUSR 295, 299

OTHER MUSIC. MUSO 159, 159c, 159d, 259, 269

LIBERAL ARTS. 30 hours, including 6-10 hours (two semesters) chosen from French, German, and Italian (see full requirements below)

FREE ELECTIVES. To complete 126 hours

WOODWIND PERFORMANCE

MUSIC THEORY, MUSICIANSHIP, AND KEYBOARD HARMONY. 19 hours
MUSC 170-170E, 171-171E, 172-172E, 173-173E
MUSC 131A-131B and 132A-132B (or 133A-133B)

MUSIC LITERATURE/HISTORY. 12 hours
MUSL 121W, 122, one course chosen from 221-238, 239

CONDUCTING. 2 hours
MUSO 261

ENSEMBLE. 10 hours minimum
MUSE 101 (every semester in residence); MUSE 207, 221, or 226 (four semesters, 1/2 credit minimum each semester, taken both semesters of freshman year, with two additional courses taken during career). 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)
MUSR 171-175; 271-275

RECITAL ATTENDANCE. No credit
MUSO 108 (every semester in residence except penultimate or final semester)

PERFORMANCE. MUSO 109A, 110D, 110E, or 110L (every semester in residence); MUSR 295, 299

OTHER MUSIC. MUSO 251

LIBERAL ARTS CORE. 30 hours (see full requirements below)

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/theory 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. 099 courses do not count for liberal arts core credit.

English/writing (6 hours)

Students must complete writing course MUSL 121W 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 (115F) in any discipline
- Writing courses in the English language in any discipline, designated by W in the course number.
  - English: all courses
  - Communication Studies: 100, 101

For musical arts/teacher education majors, an English/writing course outside of music is required.
*Students with a score of 1500 on the Writing and Critical Reading portions of the SAT with a minimum score of 760 in the Writing portion may exempt the second English/writing course, substituting 3 hours of any academic elective.

Humanities (9 hours)

HUMANITIES REQUIREMENTS

MUSL 122. Students should complete this required course during the first year.
Six additional hours of humanities electives (listed below)
For composition/theory majors, 15 hours minimum, including MUSL 122: one year of French, German, or Italian; and 6 hours chosen from 200-level art history, 200-level English, and 200-level philosophy.
For musical arts/teacher education majors, 6 hours are required, including MUSL 122 and 3 hours in art history, humanities, language, philosophy, or religious studies. (6 additional hours of humanities credit are counted in the Music Literature/History category of the major area requirements, above.)
For vocal performance majors, 9-13 hours: MUSL 122 and 6-10 hours (two semesters) chosen from French, German, and Italian.

HUMANITIES ELECTIVES

African American and Diaspora Studies: 150 and all HCA-designated courses
Anthropology: all HCA-designated courses
Arabic: all courses
Asian Studies: 200W, 211, 212, 218, 219, 220, 225, 226
Catalan: all courses
Chinese: all courses
Classics: all, except SBS-designated courses
Comparative Literature: all courses
English: all courses
European Studies: all HCA-designated courses
Film Studies: all courses except W courses
French: all courses

German: all courses
Greek: all courses
Hebrew: 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
Latin: all courses
Medicine, Health, and Society: all HCA-designated courses
Music Literature/History: 103, 115F-02, 115F-03, (Music and Modernism; Shakespeare and Music), 183, 200, 278
Philosophy: all courses except 202
Portuguese: all courses
Religious Studies or Divinity School: all courses
Russian: all courses
Spanish: all courses
Theatre: all courses offered for AXLE credit
Women's and Gender Studies: all HCA- and US-designated courses, 239, 248

History, Social Science (3 hours)

For musical arts/teacher education majors, 6 hours History and Social Science are required: 3 hours American History chosen from HIST 115F-02, 115F-16, 139, 141, 142,143, 144, 169, 173, 174, 181, 258, 259, 260, 261, 262, 263, 264, 265, 268, 269, 270, 271, 275a and AP credit in American History; and 3 hours in a social science discipline other than history chosen from Anthropology, Economics, Political Science or Sociology. (3 additional hours of history and social science credit are counted in the Music Literature/History category of the major area requirements, above.)

HISTORY
Classics: only SBS-designated courses
History: all courses
Music Literature/History: 115F-01 (Music and Global Health) 147, 171, 250, 261

SOCIAL SCIENCE
African American and Diaspora Studies: all courses except 150 and HCA-designated
Anthropology: all courses except HCA-designated
Asian Studies: 230, 236, 240
Communication Studies: all AXLE courses except 100 and 101
Economics: all courses offered for AXLE credit
European Studies: all courses except HCA-designated
Human and Organizational Development (Peabody): all 3-hour courses except 1150 and practica
Interdisciplinary Studies: 201
Jewish Studies: all SBS- , INT- , and P-designated courses
Latin American Studies: all AXLE courses
Medicine, Health, and Society: all P-designated courses and 237, 238, 245, 246
Music: MUSO 161
Political Science: all courses
Psychology (A&S): all courses except MNS-designated
Psychology and Human Development (Peabody): all 3-hour courses from 1200-2700 inclusive
Sociology: all courses
Women's and Gender Studies: all courses except HCA- and US-designated and 239, 248

Mathematics, Natural Science (3 hours)

Students who score below 520 on the SAT Reasoning Test Math Subtest or below 20 on ACT Math Subtest should take MATH 127a or 133. For musical arts/teacher education majors, 6 or 7 hours, including statistics (MATH 127a or b, MATH 180, or Psychology 2101 [Peabody]) or calculus (MATH 140-179); and a science course with a lab.

MATHEMATICS
Mathematics: all courses
Philosophy: 202
Psychology (Peabody): 2101

NATURAL SCIENCE
Astronomy: all MNS-designated courses, including accompanying labs
Biological Sciences: all AXLE courses, with corequisite labs
Chemistry: all AXLE courses, with corequisite labs
Earth and Environmental Sciences (Geology): 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/theory majors, 2–6 hours, to complete 33 hours in liberal arts.
For musical arts/teacher education majors, 6 hours, specifically Education 1020 and Special Education 1010.
For vocal performance majors, 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
- Any non-music course in the disciplines listed in the Liberal Arts Core, excluding art studio and theatre
- Non-music courses in American studies, computer science, engineering science, European studies, financial economics, any language, Latin American studies, managerial studies, human and organizational development, psychology and human development (Peabody)
- 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.

Minor Area and Concentration Requirements

Concentrations and the minor in a second instrument are open to bachelor of music degree students. Honors in Music History and Literature is open to all undergraduates. Deadline to declare a concentration or minor is December 1 of the junior year.

CONCENTRATION IN COLLABORATIVE ARTS. 15–21 hours
Literature/History: MUSL 221
Performance: MUSP 193 (1 hour), MUSR 299 (1 hour), MUSO 109D every semester
Other Music: MUSO 159, 159c, 159d, 256A or 256B, 259, 289 (2 hours in vocal coaching or chamber music literature)
Ensemble: One semester chosen from MUSE 100A, 101A, 201A, 101, 101F, or other approved conducted choir; one semester of 102; one semester of 101F (as apprentice pianist); six semesters of 201B, 201D, 221, 222, or 223; and three semesters ensemble of choice with adviser's approval.
Liberal Arts: Must include 5 hours each in two different languages chosen from Italian, German, or French. Students with previous study in one of these must study the other two.
Recommended: MUSC 224 and MUSL 218.

CONCENTRATION IN COMPOSITION. 18 hours minimum
Department approval required for admission to this concentration.
Composition/Theory: MUSC 230; choice of two from MUSC 223, 224, 225, 226, 248, 251, 261, 280, or 294

Composition (elective): 11 hours over a minimum of 4 semesters in MUSC 230E

CONCENTRATION IN MUSIC LITERATURE/HISTORY. 21–25 hours
Literature/History: 9 elective hours (in addition to 9 hours required for the musical arts major)
Liberal Arts: History 135, 136, 6-10 hours (two semesters) of foreign language approved by the department; a total of 34 hours, rather than 30, in liberal arts

CONCENTRATION IN PEDAGOGY. 15 or 16 hours
Music Cognition coursework: MUST 216.
Instrumental Literature: Choice of MUSO 256A, 256B, 257, 258, 259, or 289 (in field, 2 hours)
Pedagogy coursework: Choice of MUSO 266, 267, 268, 269 or 289 (in field, 2 hours), and Pedagogy Practicum MUSO 271 (2 hours)
Pedagogy Internship: MUSO 281 (6 hours)
Senior Recital: MUSR 299
Liberal Arts: Must include PSY 1630 and 2310 (Peabody courses)

CONCENTRATION IN THEORY. 19 hours
Departmental approval required for admission to this concentration.
Composition/Theory: MUSC 230 and 16 hours in 225, 227, 251, 261, or 294

HONORS IN MUSIC LITERATURE AND HISTORY. 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 299A-299B (6 hours), and successful completion of an oral defense.
Course work: One course beyond the MUSL core chosen from MUSL 201, 221-238, 245, 247, 252, 253, 262, or 294 (3 hours)
The MUSL credit hours of this program may double-count in the concentration in music literature/history.

MINOR INSTRUMENT. 10 hours
Ensemble: Participation on minor instrument (including voice) in two separate ensembles, as assigned (2 hours)
Performance: Minimum of four semesters in a second performance area (any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice) at a level of proficiency required by the department. Representative repertoire lists reflecting minimum performance standards and required declaration forms are available in the Blair office or online at blair.vanderbilt.edu/academics. Consent of instructor required (8 hours).

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.) degree, majoring in the musical arts/teacher education track for four years, and the master of education (M.Ed.) degree 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 music literature, 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 two student teaching opportunities in the spring semester of the master's degree work. Practica constitute a wide variety of grade K-12 experiences, including public school, private school, and Blair's pre-collegiate 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. The music electives ordinarily associated with the musical arts curriculum are, for students in the five-year program, devoted to prerequisites for the M.Ed. degree and for the teaching license; thus, there are very few free elective hours in this curriculum.

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 musical arts degree.

Specific Criteria

1. A minimum cumulative grade point average of 2.500.
2. Successful completion (C- or better) of EDUC 1020 and SPED 1010
3. Successful completion (C- or better) of MUSC 171, 171E, MUSL 121W and MUST 250A.
4. Successful completion (C- or better) of two additional Vanderbilt courses which count towards the Liberal Arts Core.

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 candidates.
2. Endorsement by the appropriate faculty that the applicant has demonstrated the personal and character traits expected of Vanderbilt teacher education candidates.

Procedure for Junior Mid-Program Review [Screening I]

Students apply for continuation in the teacher education program [Screening I] through the Blair associate dean/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.

Admission to the Master's Degree

During the junior year, students with strong records are counseled to take the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT) and apply for admission to Peabody College for the master of education degree program. The admissions process includes consideration of GPA, test scores, and recommendations. Deadline for receipt of all application materials is the summer between the junior and senior years.

Fifth Year Curriculum

SUMMER		Semester hours
EDUC 3520	Principles of ELL Education	3
EDUC 3110	Psychological Foundations of Education	3
EDUC 3510	Teaching in Secondary Schools	3
MUST 300	Philosophical Foundations and Contemporary Issues in Music Education	3
FALL		
EDUC 3050	Social/Philosophical Aspects of Education	3
EDUC 2360	Practicum in Music Education	1
EDUC 3890	Independent Study in Music (may be taken in summer; requires approval of Blair associate dean)	2
or MUST 317	Advanced Studies for the Wind Band Conductor	
MUST 320/330	Methods and Materials in Teaching Music, Instrumental or Vocal/Choral	3
MUST 340	Methods and Materials in General Music, PreK through 12	3
SPRING		
EDUC 3003	Internship in Teaching: Music	6
EDUC 3004	Internship Seminar: Music (A capstone project is also required)	1
	Total hours:	31

Admission to Student Teaching [Screening II]

Prospective student teachers must apply for admission to student teaching during the fall semester of the fifth year. Application materials are available from the Peabody Office of Teacher Licensure, located in 210 Peabody Administration Building. Deadline for submitting applications is 1 October. Student teaching requires at least two placements at two different age levels in a fifteen-week semester.

General Criteria for Admission to Student Teaching

1. Completion of the B.Mus. degree.
2. Admission to the Master of Education program.
3. Successful completion of all courses prerequisite to student teaching.
4. A minimum grade point average of 3.00.
5. Satisfactory performance in course work in areas in which teacher licensure is sought.
6. Submission of a résumé and personal statement, discussing why the applicant wants to teach and what strengths the applicant brings to the classroom.
7. Endorsement by the appropriate faculty regarding academic, musical, and personal readiness to teach, including dependability, professional and ethical behavior, attitude, and interpersonal skills.

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. Normally a Tennessee license is accepted in all other states and foreign countries in which Vanderbilt students apply to teach. The student is responsible for applying for licensure through the Office of Teacher Licensure located in 210 Peabody Administration Building. Each state has its own set of application forms and procedures for licensure; information is available in the Office of Teacher Licensure.

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 a 3.0 grade point average in the fifth year..
2. Achieving the state minimum score on all required parts of the PRAXIS Examinations. A copy of the scores must be sent to the Vanderbilt Office of Teacher Licensure (code R 1871).
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).

All Vanderbilt teacher education programs are approved by the National Council for Accreditation of Teacher Education (NCATE). The program for licensure to teach instrumental/general or vocal/general music is approved by the National Association of Schools of Music (NASM).

3+2 B.Mus./MBA Blair-to-Owen Program

The five-year joint 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 coursework 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 music 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 major.

This program follows the model adopted by the College of Arts and Science and the School of Engineering, in which a student spends his or her undergraduate time to "pursue intellectual curiosity and develop analytic and communication skills—without regard to subject matter," completing all of the requirements of an established undergraduate major. Thus, students in this Blair-to-Owen program will continue to fulfill all of the B.Mus. degree requirements in musical arts, but choose course offerings (particularly in their academic electives) that will facilitate a rapid completion of the MBA requirements.

Required course work includes the normal Blair course work for the musical arts major, plus Business of Music (MUSO 100) and a graded internship (MUSO 280A or 280B), for a minimum of 80 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 150: Economic Statistics
- Econ 100: Principles of Macroeconomics
- Econ 101: Principles of Microeconomics
- Econ 231: Intermediate Microeconomic Theory

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. Applications are due no later than October 1 of the junior year, and early application and GMAT 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 his or her portfolio with outstanding academic performance and show a strong commitment to a rigorous business education. The Summer Business Institute (Accelerator) 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. students through spring of junior year and 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. degree requirements (normally, lessons and ensembles) in the musical arts major. The completion of the B.Mus. 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 joint 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 MUSP instruction during spring of the fourth year to facilitate completion of the B.Mus. requirements.

Special Programs

BLAIR School of Music offers individual, group, class, and ensemble instruction to pre-college and adult students (defined as students above high school age not receiving university credit). A catalog describing these programs is available at *blair.vanderbilt.edu*.

The Adult Program

Blair offers to adults individual instruction in orchestral instruments, piano, organ, guitar, harp, saxophone, euphonium, harpsichord, fiddle, banjo, mandolin, dulcimer, steel drum/pan, voice, and composition. Jazz voice, guitar, drumset, saxophone, and piano are also available. Group instruction is available in piano, guitar, percussion, and steel drum.

Classes are offered in music theory, music literature and history, musicianship, music business, songwriting, and Alexander Technique. Ensembles open to adults include the Vanderbilt Community Chorus, percussion ensemble, steel drum ensemble, African Performing Ensemble (Sankofa), fiddle ensemble, and the collegiate chamber music offerings.

The Precollege Program

Blair offers individual instruction in orchestral instruments and in piano, organ, guitar, harp, saxophone, euphonium, harpsichord, fiddle, banjo, mandolin, dulcimer, steel drum/pan, and voice. Jazz voice, guitar, drumset, saxophone, and piano are also available. Group instruction is available in piano, fiddle, and (for young children) Kindermusik for ages birth to six years. Instruction using the Suzuki method is offered in violin, viola, cello, and piano.

Class instruction includes music theory, music literature/history, and Alexander Technique.

Ensemble training is offered through the Nashville Youth Orchestra program, the Blair Children's Chorus program, Violin Performing Ensemble, Cello Choir, chamber music, and African Performing Ensemble (Sankofa).

The Blair School Certificate Program provides a curriculum integrating advanced levels of performance study with training in music theory and history, performance classes, and recitals. Students who successfully complete the requirements for this program present a solo recital during their high school senior year and receive either the Certificate of Achievement or the Certificate of Merit upon graduation. A variety of merit and need-based scholarships, for which students may audition, are awarded each year to outstanding precollege students by the school and by several donors. Students in area high schools may earn out-of-school credit towards high school graduation for individual study of music at Blair or through participation in the Nashville Youth Orchestra program or Blair Children's Chorus program.

The Blair Concert Series

The Blair Concert Series offers solo, chamber, and orchestral music performance to the university community and the region. The Blair Concert Series provides exceptional programming through the faculty Signature Series, the BMI Composer in Residence Series, the Nightcap Series, and the Music on Film Series. National and international artists and ensembles, the Blair faculty, including resident ensembles and soloists, and student ensembles and performers are all featured. Weekly student recitals, held each Thursday at 3:00 p.m., are open to the public, as are all other student recitals. More than 300 concerts are presented at the school each year, and most are free of charge, as a gift to the community.

"The Blair Commissions: Music for the 21st Century," a project funded by the James Stephen Turner Family Charitable Foundation, presented three major world premieres by some of the world's most celebrated composers in the 2009–12 concert seasons. The first premiere, *A Year in the Catskills* by Peter Schickele, was performed in Ingram Hall on March 16, 2009, by the Blair Woodwind Quintet. In spring 2010, the Blakemore Trio premiered a work by composer/soprano Susan Botti in Nashville and at Merkin Hall in New York City. *Images from a Closed Ward,* composed by Michael Hersch for the Blair String Quartet, was premiered in Nashville and New York City in spring 2012. The project serves 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.

The BMI Composer-in-Residence program, sponsored by Broadcast Music Inc., brings visiting composers to campus every year. The three-day residency includes lectures, performances of the composer's works, and opportunities for interaction with students. Composers-in-residence have included Robert Beaser, George Crumb, Michael Daugherty, Lukas Foss, John Harbison, Karel Husa, Steven Mackey, Donald Martino, Cindy McTee, Christopher Rouse, Adam Schoenberg, Joseph Schwantner, Frank Ticheli, Michael Torke, and Joan Tower.

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.

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.

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 permitted to take fewer than 12 hours are placed on probation, unless their light load 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).

Residence Requirement

Students must complete at least half the credit required for the B.Mus. degree (63 hours) and four semesters, including the last two semesters and the last 30 credits, in residence at the Blair School. "In residence" is defined as enrolled for a minimum of 12 hours. 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.

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. degree.

Pre-freshman work. Credit for pre-freshman college work may be given, subject to evaluation by the registrar and approval of the associate dean. Credit for courses taken at another institution during the summer preceding a student's initial enrollment at Vanderbilt will be granted only if approval is obtained in advance from the associate dean. The course work must be comparable to courses offered at Vanderbilt. Credit will be awarded only if the course is regularly offered by an accredited two-year or four-year college or university, if the teacher was a regular faculty member of that institution, and if a majority of the students in the course were candidates for a degree at that institution.

Summer studies. Students enrolled at Blair may receive transfer credit for summer courses taken at another four-year, fully accredited institution. This may include work at festivals or camps, if offered through an accredited institution. To qualify for summer credit, a student must be in good standing, consult the school registrar, provide course descriptions, and obtain authorization in advance. 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 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, the appropriate academic department, and the Blair registrar's office.

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/theory applicants must submit a composition portfolio and interview with a member of the composition/theory faculty.

Transfer students must submit catalog copy and, in most cases, 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

by the appropriate Vanderbilt department. 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. program, music fees are covered through the end of the final term as a B.Mus. student. All students are expected to maintain a minimum of 3 credit hours within their home school until transfer is approved. First semester freshmen are ineligible for transfer status. 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 Vienna, Austria, and in Amsterdam, The Netherlands, the Milhaud Conservatory through Vanderbilt in France, 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. Students enrolled in IES Vienna will be required to enroll in German; there is, however, no language prerequisite for admission to the program. Further information can be obtained from the Vanderbilt Global Education Office 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. Former Blair students in these programs have typically enrolled in music electives, courses in the liberal arts core, and coursework towards minors and second majors. Students in these programs typically arrange alternative private lesson study, and those fees are usually not covered by tuition. It is also possible to pursue study abroad through transfer credit; the associate dean's office has more details.

Registration

Registration is available to entering freshmen 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.htm.*

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 prerequisites, 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), normally the first week of classes, 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 instructor, 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)
MI:	missed final examination and incomplete in some other requirement

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, M,* or *MI)* 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 school registrar can assist with P/F registration.

For B.Mus. students, the Pass/Fail option is limited to courses taken as free electives. Coursework 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 until the close of the Change Period. Students may change from Pass/Fail to graded status until the deadline date for dropping a course that is published in the University 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 University Registrar distributes deficiency notices to students whose mid-semester grade in any course is a *C–* or below or whose work is incomplete (*I*). (Deficiency notices are found on the student landing page 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 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 card (green card) must be signed by the instructor, adviser, and associate dean and filed with the Blair School registrar. (Students from other schools of the university must file with their home school registrar.) 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 with a specified deadline by which they will be replaced with a permanent grade. A student who receives a temporary grade is ineligible for the Dean's List. Students cannot graduate with any temporary grades.

I: Incomplete

An Incomplete is given only under extenuating circumstances and only when a significant body of satisfactory work has been completed in a course. The *I* is not intended as a replacement for a failing grade, nor should it be given to a student who misses the final examination. The *M* grade is used for the latter purpose. The request for an Incomplete is generally initiated by the student and must be approved by the instructor. The instructor may initiate the assignment of an Incomplete if warranted by the circumstances and conditions referenced above. In either case, in assigning the grade of *I,* the instructor specifies (a) a default grade that counts the missing work as zero and (b) a deadline by which the missing work must be submitted. That deadline must be no later than the last class day of the next regular semester in residence. The Incomplete can be extended beyond the next semester only if the student's associate dean determines that an extension is warranted. If the required work is submitted by the deadline for removing the Incomplete, the *I* will be replaced by the grade earned. If the work is not completed by the deadline, the default grade will become the permanent grade for the course.

The Incomplete is not calculated in the GPA, but a student who receives an Incomplete is ineligible for the Dean's List.

M: Missing a Final Examination

The grade *M* is given to a student who misses the final examination and is not known to have defaulted, provided the student could have passed the course had the final examination been successfully completed. The grade of *F* is given if the student could not pass the course even with the final examination.

It is the student's responsibility to contact the Dean's Office before the first class day of the next regular semester, regardless of whether the student will be in residence that semester, to request permission to take a makeup examination. The makeup examination must be taken on or before the tenth class day of the next regular semester. If the request has not been submitted by the proper time, or if the student fails to take the makeup examination within the prescribed time, the *M* grade will be replaced by a default grade submitted by the instructor when the *M* is assigned.

MI: Missing a Final Examination and Other Work

The grade *MI* is assigned to a student who misses the final examination and whose work is incomplete in other respects. The *MI* may not be turned in without prior authorization by the dean. It is the student's responsibility to contact the Dean's Office to request permission to take a makeup examination and to arrange for submission of the missing work.

No-Credit Courses (NC)

Students who wish to take courses on a no-credit basis must file with the Blair registrar before the end of the Change Period, usually the first week of classes. Students must attend class and complete all course work. A grade is recorded on the transcript with the notation *NC*, 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 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 school registrar. 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 department chairs. 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).

Writing Portfolio

Students in their senior year are required to submit a writing portfolio drawn from academic coursework 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 connection across two or more disciplines. Students are encouraged but not required to prepare a one-paragraph narrative explaining how the submitted work demonstrates the required competencies.

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 University Registrar's office 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 MUSC 171 and 171E, 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, freshmen 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 Harold Stirling 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. Incomplete 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.

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 registrar.

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 registrar.

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.

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.

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 from the Blair registrar and 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 registrar 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 must 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 Center for Student Professional Development 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 MUSO 280A, 280B, or 280C as a corollary if credit is desired. Students with summer internships that require an academic component must register for credit. 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. Degree

Fees. Performance instruction fees are waived for B.Mus. students.

Elective credit. B.Mus. students taking a second instrument normally enroll in MUSP 171-196 for 1 or 2 hours elective credit. Consent of the instructor is required. B.Mus. majors who have declared a minor instrument also register for MUSP instruction at the 100 level; consent of the instructor and notification of the Blair registrar are required.

Composition/Theory Majors. Students register for MUSP performance courses at the 100 level. A minimum of 6 semesters of study totaling 6 credit hours required.

Musical Arts Majors and Musical Arts/Teacher Education Majors. Students register for MUSP courses in their primary area. Freshmen and sophomores register for MUSP 100-level instruction. Juniors and seniors register for MUSP 200-level instruction. A minimum of 8 semesters totaling 16 credit hours required; performance instruction required every semester in residence.

Performance Majors. Students register for MUSR performance instruction in their primary area. Freshmen and sophomores register for MUSR 100-level instruction. Juniors and seniors register for MUSR 200-level instruction. 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 200 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 accompaniment 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 Blair, 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 musical arts/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 department chair 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 must encompass three major style periods, as appropriate to the medium; at least one work in a modern idiom must be included in either the junior or senior recital. 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.

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 the committee members, with the studio instructor's grade valued at 50 percent. 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 and attend weekly student recitals/convocations on Thursdays at 3 p.m. 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. Incompletes will not be granted except in the case of documented medical emergency.

Students must register their attendance at each recital. Two absences from Thursday 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. The first failure would result in the loss of the senior 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 reported to the Blair registrar and also be submitted to 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 registrar, 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 registrar 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

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 year's Vanderbilt graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous year's Vanderbilt graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous year's Vanderbilt graduating seniors.

Honors Program in Music Literature and History

The honors program in music literature and history 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 department in the fall of their junior year. Departmental approval of a formal honors thesis prospectus must take place prior to registration for MUSL 299A in spring of the junior year or fall of the senior year. Minimum requirements are a 3.0 GPA overall and 3.3 in music literature and history courses.

Students accepted into the program must take a total of 9 credit hours: MUSL 299A–299B, Senior Honors Thesis (6 hours) and one course (beyond the MUSL core) chosen from MUSL 201, 221-238, 245, 247, 252, 253, 256, 262, 278, or 294 (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 music literature and history.

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:

THE MARGARET BRANSCOMB 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 prize was established by family and friends in memory of Margaret Branscomb, wife of the late Vanderbilt Chancellor Emeritus Harvie Branscomb.

THE SUE BREWER AWARD was established by the Songwriters Guild Foundation in memory of Sue Brewer, who befriended many of Nashville's struggling songwriters in the late 1960s and 1970s. It is awarded for excellence to a student pursuing a degree in guitar or composition/theory.

THE CONFROY-LIJOI JAZZ AWARD is given to a student in the Blair School's jazz program, to recognize excellence in jazz performance during the year. The award, made by the entire faculty upon nomination by the directors of the jazz ensembles, was established in 2005 by Mr. and Mrs. Peter B. Lijoi in honor of their parents.

THE RICHARD C. COOPER AWARD was established in 2002 by the Pi Delta Chapter of Phi Mu Alpha Sinfonia, to remember the outstanding contributions made by Chris Cooper to the student experience of music at Vanderbilt. Nominations are made by student organizations, recognizing campus-wide leadership in music.

THE ROBIN DICKERSON AWARD was established in 1995 in honor of soprano Robin Nell Dickerson, B.Mus. '94, by Blair faculty and students. It is awarded by the voice faculty to an outstanding voice major for excellence in performance and scholarship.

THE JEAN KELLER HEARD PRIZE is designed for a string student seeking the Bachelor of Music degree. The scholarship fund was established by the Vanderbilt Women's Club to honor violinist Jean Keller Heard, wife of Vanderbilt's fifth Chancellor, Alexander Heard. The fund continues to grow as additional gifts in honor of Mrs. Heard are given to the school.

THE MAGDA LACHS AWARD was established in honor of Magda Lachs in 2008 and is made to an outstanding voice or orchestra student who participated in the current year's Vanderbilt Opera Theatre production.

THE S. S. AND I. M. F. MARSDEN AWARD IN MUSICAL SCHOLARSHIP is awarded annually to a Blair student for excellence in scholarship, e.g., a major written paper, on a topic that lies outside the normal core of scholarship. Honors projects, independent study projects, and substantial class

papers are eligible for consideration for the award. Only papers of extraordinary scope, additional outside recognition, or unusual range beyond the normal core of scholarship are eligible for the Marsden Award.

THE DELENE LAUBENHEIM MCCLURE MEMORIAL PRIZE is given to a voice major who exhibits excellence in opera performance. This prize was established by alumni and faculty of the Blair School of Music and other friends of Delene Laubenheim McClure, B.Mus. `91, whose untimely death foreshortened a promising career in music. Through her participation in Blair's first opera productions, Dede helped set a standard for excellence in performance.

THE MICHELSON COLLABORATIVE ARTS AWARD is presented to a singer, pianist, or voice/piano duo for exceptional performance in collaborative arts.

THE ACHIEVEMENT IN TEACHING RECOGNITION AWARD is presented by the piano faculty to a senior pianist who has demonstrated superior abilities in both private and group teaching. The recipient must intend to teach music professionally in an independent studio, in a classroom, or at the collegiate level. The prize is a one-year membership to the Tennessee and Nashville Area Music Teachers Association or the equivalent.

THE ELLIOT AND AILSA NEWMAN PRIZE is presented annually to a promising clarinetist or woodwind student for excellence in performance. The prize was endowed by Ailsa Mackay Newman in memory of her husband, Vanderbilt's Werthan Professor of Experimental Medicine, 1952–1973, and an avid amateur clarinetist.

THE L. HOWARD "ZEKE" NICAR AWARD is presented annually to the most outstanding woodwind or brass student. The award was established by family, faculty, and friends to honor the memory of the Blair School's first Assistant Dean for Admissions.

THE EXCELLENCE IN PERCUSSION PERFORMANCE AWARD was established in memory of James Harrison Griggs, an outstanding percussion major, B.Mus. `94. This award is given to a percussion major for excellence in performance.

THE PRESSER AWARD is presented to a junior for musical and academic excellence and is the most prestigious honor available to a junior at Blair. At least one third of the student's credits must be outside the field of music. The recipient must have a cumulative grade point average of 3.25 and have been named to the most recent Dean's List. The award honors the memory of Theodore Presser, American publisher and musical philanthropist.

THE DAVID RABIN PRIZE was established by family and friends in memory of Dr. David Rabin, professor of medicine and of obstetrics and gynecology at Vanderbilt University Medical School, 1975 to 1984. The prize is awarded annually, based on excellence in musical performance, to a student enrolled at Blair. The fund continues to grow as contributions in honor of Dr. Rabin are given to the school.

THE SIGMA ALPHA IOTA COLLEGE HONOR AWARD is given annually to the most outstanding member of the chapter based on scholarship, musicianship, participation in school activities, and contribution to the fraternity chapter. The award was established in 2000.

THE SIGMA ALPHA IOTA SCHOLARSHIP AWARD is given to the graduating senior who has attained the highest scholastic average during her college years. The award was established in 2000.

THE BLAIR VOLUNTEER SERVICE THROUGH MUSIC AWARD was newly instituted in 2009 by an anonymous donor and recognizes an outstanding student who has used music in service to others.

THE MARTIN WILLIAMS AWARD was established in memory of Martin Williams, former director of the Smithsonian Institution's Jazz Program and Adjunct Professor of Jazz History at Blair. It is presented to the student writing the most outstanding class paper during the academic year. The fund continues to grow as gifts honoring Mr. Williams are given to the school.

Blair School of Music Courses

Composition/Theory, Musicianship, and Keyboard Harmony

MUSC 100. Songwriting and Elements of Music Theory. 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.

MUSC 102. Songwriting II. Project-based class designed to refine and advance skills developed in MUSC 100. 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: MUSC 100. FALL, SPRING. [3] Walker.

MUSC 104. Nashville Number System for Songwriters/Performers. Designed for songwriters and practitioners who may not read traditional music. Introduction to intervals, major and minor scales, chords and chord extensions, inversions, time signatures, note values, the Nashville Number System, song forms, charting original songs and classic hits. Includes observation and discussion of studio work. Does not count toward major or minor in music. FALL. [1] Blackmon.

MUSC 118. Mozart. 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] Bingham.

MUSC 120A. Survey of Music Theory. 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. Not open to students who have completed MUSC 170 or 171. Does not count toward a major in music. [3] Deakin.

MUSC 120B. Survey of Music Theory. 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: MUSC 120A. Not open to students who have completed MUSC 170 or 171. Does not count toward a major in music. [3] Deakin.

MUSC 121. Music Theory I: Tonal Harmony and Voice-Leading. Fundamentals of tonal harmony (scales, functional triads, seventh chords), introduced through the principles of Bach chorale style. Emphasis on voice-leading exercises. [2] (Not currently offered)

MUSC 121E. Ear Training and Sightsinging I. Aural skills developed through sightsinging and harmonic/melodic dictation. Prerequisite: ability to match pitch; successful completion of placement exam. Corequisite: MUSC 121 or consent of instructor. [1] (Not currently offered)

MUSC 122. Music Theory II: Tonal Harmony and Voice-Leading. Advanced tonal harmony (secondary dominants, modulations, altered chords, etc.), demonstrated through Bach chorale style, with further illustrations from music of various historical periods. Prerequisite: C– or above in 121. [2] (Not currently offered)

MUSC 122E. Ear Training and Sightsinging II. Continuation of 121e. Usually taken concurrently with 122. Prerequisite: 121E. Strongly recommended: C– or above in 121E. SPRING. [1] (Not currently offered)

MUSC 123E. Ear Training and Sightsinging III. Continuation of aural skills developed in 121E and 122E. Prerequisite: 122E. Strongly recommended: C– or above in 122E. (Not currently offered)

MUSC 124E. Ear Training and Sightsinging IV. Continuation of aural skills developed in 123E. Prerequisite: 123E. Strongly recommended: C– or above in 123E. (Not currently offered)

MUSC 130. Introductory Keyboard Harmony. Introduction to repertoire, technique, transposition, harmonization, improvisation, and sight reading. Designed for B.Mus. students who have no piano background. Provides preparation for the Keyboard Harmony sequence. FALL. [1] May, Koutsoukos.

MUSC 131A. Keyboard Harmony I. Development of basic technique, reading proficiency, elementary transposition. Diatonic harmony at the keyboard. Prerequisite: placement test. Not open to students who have completed 133A or 133B. [1] Koutsoukos, May.

MUSC 131B. Keyboard Harmony II. Development of basic technique, reading proficiency, elementary transposition. Diatonic harmony at the keyboard. Prerequisite: placement test or MUSC 131A. Not open to students who have completed 133A or 133B. [1] Koutsoukos, May.

MUSC 132A. Keyboard Harmony III. Harmonization of melodies, improvisation of small musical forms, transposition in all keys with cadences and modulations, four-part score reading. Prerequisite: 131B. Strongly recommended: C– or above in 131B. Not open to students who have completed 133A or 133B. [1] Koutsoukos, May.

MUSC 132B. Keyboard Harmony IV. Harmonization of melodies, improvisation of small musical forms, transposition in all keys with cadences and modulations, four-part score reading. Prerequisite: 132A. Strongly recommended: C– or above in 132A. Not open to students who have completed 133A or 133B. [1] Koutsoukos.

MUSC 133A. Accelerated Keyboard Harmony I. 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 131A-131B or 132A-132B. FALL. [2] Krieger.

MUSC 133B. Accelerated Keyboard Harmony II. Intensive study of materials presented in 133A. Prerequisite: 133A. Strongly recommended: C– or above in 133A. Not open to students who have completed 132A-132B. SPRING. [2] Krieger.

MUSC 141. First-Year Composition I. Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition/theory majors; instructor as assigned. Corequisite: 230. [1] Kurek, Link, Michael Rose, Slayton.

MUSC 142. First-Year Composition II. Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition/theory majors; instructor as assigned. Prerequisite: 141. [2] Kurek, Link, Michael Rose, Slayton.

MUSC 143. Composition I. Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition/theory majors; instructor as assigned. Prerequisite: 142. [3] Kurek, Link, Michael Rose, Slayton.

MUSC 144. Composition II. Individual instruction and seminar. A variety of media, styles, and forms. Electronic and experimental techniques. Open only to composition/theory majors; instructor as assigned. Prerequisite: 143. [3] Kurek, Link, Michael Rose, Slayton.

MUSC 170. The Syntax of Music. 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 MUSC 170E / Musicianship Level I throughout. Corequisite: MUSC 170E. FALL. [2] Deakin, Slayton, Carl Smith.

MUSC 170E. Musicianship Level I. 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: MUSC 170. FALL. [1] McGuire, Williams.

MUSC 171. Harmonic Idioms of the Common Practice Period. Principles of harmonic progression in the context of music from the common practice period. Includes figured bass realization, harmonization, analysis, composition, contrapuntal idioms, modulation. Prerequisite: B– or above in MUSC 170; corequisite: MUSC 171E. SPRING. [3] Kurek, Michael Rose, Carl Smith, Slayton.

MUSC 171E. Musicianship Level II. 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 170E; corequisite: MUSC 171. SPRING. [1] McGuire, Williams.

MUSC 172. Repertoire Analysis. A study of diverse and interrelated harmonic, melodic, rhythmic, and structural aspects of the musical repertoire from the common practice era. Approaches to understanding various historical styles through composition and through analysis and interpretation of representative works from each era. Includes study of invention and fugue. Prerequisite: C– or above in MUSC 171; corequisite: MUSC 172E. FALL. [3] Michael Rose, Kurek, Link, Slayton.

MUSC 172E. Musicianship Level III. 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 171E; corequisite: MUSC 172. FALL. [1] McGuire.

MUSC 173. Musical Expansion: The Twentieth Century to the Present. Late-Romantic, modernist, and post-modern 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 MUSC 172; corequisite: MUSC 173E. SPRING. [3] Link, Kurek, Michael Rose, Slayton.

MUSC 173E. Musicianship Level IV. 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 172E; corequisite: MUSC 173. SPRING. [1] McGuire.

MUSC 216. Computer Music. The computer as a tool for musical sound synthesis, digital instrument design, and computer-assisted composition and performance. Styles and techniques in computer music in the commercial and fine arts. Programming and computer composition. Prerequisite: any computer science course or consent of the instructor. SPRING. [3] (Not currently offered)

MUSC 220. Music Theory III: Tonal Harmony and Tonal Counterpoint. Continuation of 122. Tonal harmony and voice leading, including elements of chromatic harmony and elements of counterpoint and fugue in the inventions and fugues of J. S. Bach. Prerequisite: 122. Strongly recommended: C– or above in 122. (Not currently offered)

MUSC 221. Music Theory IV: Form in Tonal Music. A study of the formal principles of music, beginning with the phrase and progressing through large-scale standard forms (sonata, rondo, etc.). Examination of scores in a variety of styles and textures, including scores exhibiting chromatic harmony. Concepts applied to original compositions. Prerequisite: 220. Strongly recommended: C– or above in 220. (Not currently offered)

MUSC 222. Music Theory V: Post-Romantic and Twentieth-Century Techniques. Analysis of the scores and compositional techniques of Debussy, Schoenberg, Webern, Stravinsky, Bartók, Crumb, and others. Concepts applied to original compositions. Prerequisite: 122E, 221. [2] (Not currently offered)

MUSC 223. Techniques of Choral Composition. 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: 122 or 171 or consent of instructor. FALL. [3] Carl Smith. (Offered alternate years)

MUSC 224. Orchestration. Technical and aesthetic considerations in composing or transcribing for individual orchestral instruments, sections, and full orchestra. Score analysis and composition projects. Prerequisite: 122 or B– or above in 170. SPRING. [3] Kurek.

MUSC 225. Post-tonal Analysis. 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: MUSC 173 or 222. SPRING. [2] Slayton. (Offered alternate years)

MUSC 226. Chromatic Harmony in the Romantic Era. 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: MUSC 173 or 222. [3] Michael Rose.

MUSC 227. Individual Theory Instruction (Elective). Individual instruction and seminars. Score analysis and style-study composition. Prerequisite: MUSC 173 or 221 and consent of instructor. May be repeated for credit. [Variable credit: 1-3 each semester] Music theory faculty.

MUSC 228. Junior Thesis. Completion of an extended paper based upon musical analysis. Open only to composition/theory majors. Topic subject to approval. Progress monitored via tutorials. Completion of Junior Thesis is prerequisite for MUSC 299 and MUSC 241C. [1] Kurek, Link, Michael Rose, Slayton.

MUSC 229. Senior Thesis. Completion of an extended paper based upon musical analysis. Open only to composition/theory majors. Topic subject to approval. Progress monitored via tutorials. [1] Kurek, Link, Michael Rose, Slayton.

MUSC 230. Introduction to Composition. An introduction to compositional techniques including a study of composers and their work. Principles of scoring, the study of notation including experimental types. Prerequisite: MUSC 120A, 170, or equivalent skills. FALL. [3] Kurek.

MUSC 230E. Composition (Elective). Individual instruction and seminars. A variety of media, styles, and forms. Electronic and experimental techniques. Prerequisite: 230 and consent of instructor. [Variable credit: 1-3 each semester] Kurek, Link, Michael Rose, Slayton.

MUSC 241A. Advanced Composition I. Continuation of 143–144. Open only to composition/theory majors. A fourth credit may be elected with instructor approval for focused opportunities such as analysis, repertoire study, etc. [3–4 each semester] Kurek, Link, Michael Rose, Slayton.

MUSC 241B. Advanced Composition II. Continuation of 143–144. Open only to composition/theory majors. A fourth credit may be elected with instructor approval for focused opportunities such as analysis, repertoire study, etc. Prerequisite: MUSC 241A. [3–4 each semester] Kurek, Link, Michael Rose, Slayton.

MUSC 241C. Advanced Composition III. Continuation of 143–144. Open only to composition/theory majors. A fourth credit may be elected with instructor approval for focused opportunities such as analysis, repertoire study, etc. Prerequisite: MUSC 241B. [3–4 each semester] Kurek, Link, Michael Rose, Slayton.

MUSC 241D. Advanced Composition IV. Continuation of 143-144. Open only to composition/theory majors. A fourth credit may be elected

with instructor approval for focused opportunities such as analysis, repertoire study, etc. Prerequisite: MUSC 241C. [3–4 each semester] Kurek, Link, Michael Rose, Slayton.

MUSC 248. Jazz Chord Extensions and Patterns. An in-depth study of jazz chords, their relationships and progressions. Includes analysis, transcription, and performance of advanced jazz chord extensions. Prerequisite: MUSC 120B or 171-171E. Recommended: MUSO 131. SPRING. [2] Adair.

MUSC 251. Historical Traditions in Composition and in Performance. 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: MUSC 171. FALL. [3] Carl Smith.

MUSC 255. Early Keyboard Literature. 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)

MUSC 261. Counterpoint: 16th Century Principles. Techniques for handling independent musical lines according to sixteenth-century principles. Species counterpoint in two voices, composition in three and four voices, and in non-modal and freely tonal styles, but not high Baroque style. Prerequisite: MUSC 171. FALL. [3] Carl Smith. (Offered alternate years)

MUSC 271E. Advanced Musicianship V. Further development of aural skills, including techniques for hearing, singing, reading, and writing tonal and atonal music in real time. Prerequisite: MUSC 173E. FALL. [1] Ploger.

MUSC 272E. Advanced Musicianship VI. Further development of aural skills, including techniques for hearing, singing, reading, and writing tonal and atonal music in real time. Prerequisite: 271E. SPRING. [1] Ploger.

MUSC 273E. Advanced Musicianship VII. A continuation of techniques studied in MUSC 272E. 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: 272E. FALL. [1]

MUSC 274E. Advanced Musicianship VIII. A continuation of techniques studied in MUSC 273E. 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: 273E. SPRING. [1]

MUSC 275E. Musicianship modules. Musicianship skills relevant to specific musical idioms, composers, or genres as experienced in the practice, rehearsal and performance of a musical repertoire. Modules take place for seven consecutive weeks in the first or second half of the semester, allowing students to cover one or more specialized subjects during a single term. Modules whose subject matter is greater in scope are offered for an entire semester on an alternate year basis. Prerequisite: MUSC 173E. [½ or 1] Ploger. (Not currently offered)

MUSC 276E. Musicianship: Brahms and Romanticism; Solo and Small Chamber Works. A study of skills needed to perform, aurally comprehend and mentally analyze the solo vocal and instrumental plus small chamber works for strings, winds and keyboard of Brahms, with comparative studies of works of Schumann and Chopin. Lecture, discussion, guided listening exercises, class performance participation and score reading. Prerequisite: MUSC 173E. [1] Ploger. (Not currently offered)

MUSC 280. Musical Explorations: Bartók. In-depth study of the life and music of Béla Bartók; includes detailed investigation of salient theoretical concepts, formal structures, and the composer's integration of various regional folk musics into his own works. Prerequisite: MUSC 173 or permission of instructor. SPRING [2] Slayton

MUSC 294. Special Topics in Music Theory. 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.] Kurek, Link, Michael Rose, Slayton, Carl Smith.

MUSC 299. Senior Composition Recital. Planning, rehearsing, and performing in a concert devoted solely to a student's own work. Open only to composition/theory majors. Corequisite: 241D. [1] Kurek, Link, Michael Rose, Slayton.

MUSC 341A. Intensive Musicianship I. Intensive immersive musical instruction modeled on language acquisition process, designed to provide musicians with practical skills in real-time aural processing, including interval identification, reading and notating pitch and rhythm, facility in each of the diatonic modes, aural tracking of multiple simultaneous parts. Open by instructor approval. SUMMER. [1] Ploger.

MUSC 341B. Intensive Musicianship II. Intensive immersive musical instruction modeled on language acquisition process, designed to provide musicians with practical skills in real-time aural processing, including interval identification, reading and notating pitch and rhythm, facility in each of the diatonic modes, aural tracking of multiple simultaneous parts. Open by instructor approval. SUMMER. [1] Ploger.

MUSC 342. Intensive Musicianship III. Continuation of materials covered in Intensive Musicianship 341 A-B, including further real-time aural processing, with discussion of pedagogical approaches to teaching musicianship using a language-acquisition model. Prerequisite: 341B. SUMMER. [1] Ploger.

Ensembles

All MUSE courses are repeatable. Students may accrue up to six credits per semester of enrollment.

MUSE 100A. Blair Chorale. A variety of choral and vocal experiences including chamber music, madrigals, individual small group coaching. Reading sessions of choral and vocal repertoire from the Middle Ages to current age. Guest lectures in a variety of topics ranging from vocal physiology to Alexander Technique. FALL MODULE B. [½] (Not currently offered)

MUSE 101. Instrumental Ensembles. 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.

MUSE 101A. Vanderbilt Symphonic Choir. Open by audition to all members of the Vanderbilt community, this choral ensemble performs literature requiring large forces, such as masses and oratorios. At least one formal concert each semester and at least one work each year with the Vanderbilt Orchestra. [1] Biddlecombe.

MUSE 101F. Vanderbilt Opera Theatre. 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 MODULE B. [1] Shay.

MUSE 101G. Collegium: Vocal Ensemble. Open by audition to all Vanderbilt students, this small ensemble performs music of the Medieval, Renaissance, and Baroque periods. At least one major concert is presented each semester, often in conjunction with Collegium instrumental ensembles (202A–C). [1] (Not currently offered)

MUSE 102. Accompanying Techniques. Basic techniques of vocal and instrumental collaboration. Choral/orchestral score reading, orchestral reductions, continuo realization, modern editions of early music, musical terms, diction, and ensemble techniques. Performance of vocal and instrumental accompaniments. Both group and individual coaching. Open only to B.Mus piano majors in fall; by consent of instructor in spring. [1] Melissa Rose.

MUSE 131. Jazz Ensemble: Big Band. 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. [1] Billy Adair.

MUSE 132. Jazz Ensemble: Small Combo. 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. [1] Spencer.

MUSE 150A. Steel Drum/Pan Ensemble. 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.

MUSE 150B. Steel Drum/Pan Ensemble. 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.

MUSE 150C. Steel Drum/Pan Ensemble. 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 150A or 150B. [1] Britain.

MUSE 171. African Performing Ensemble. 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.

MUSE 201A. Blair Chamber Choir. Open by audition to all Vanderbilt students, this select 16–24 voice chamber ensemble performs music in a variety of styles. At least one formal concert each semester. [1] Biddlecombe.

MUSE 201B. Vocal Accompanying. 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.

MUSE 201D. Vocal Chamber Music. 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: ½, 1, or 2 each semester] Dorfman, Melissa Rose.

MUSE 202A. Blair Collegium: Viols. Open by audition to all Vanderbilt students or upon recommendation of the private instructor, the small instrumental ensembles are devoted to the performance of early music on authentic instruments. 1–2 hours of rehearsal each week. [1] (Not currently offered)

MUSE 202B. Blair Collegium: Recorders. Open by audition to all Vanderbilt students or upon recommendation of the private instructor, the small instrumental ensembles are devoted to the performance of early music on authentic instruments. 1–2 hours of rehearsal each week. [1] (Not currently offered)

MUSE 202C. Blair Collegium: Mixed Ensembles. Open by audition to all Vanderbilt students or upon recommendation of the private instructor, the small instrumental ensembles are devoted to the performance of early music on authentic instruments. 1–2 hours of rehearsal each week. [1] (Not currently offered)

MUSE 202D. Blair Collegium: Continuo. Open by audition to all Vanderbilt students or upon recommendation of the private instructor, the small instrumental ensembles are devoted to the performance of early music on authentic instruments. 1–2 hours of rehearsal each week. [1] Carl Smith.

MUSE 204. Guitar Ensemble. Open by consent of instructor. [1] Johns, Phillips.

MUSE 206. Brass Chamber Ensembles. Open by audition to all Vanderbilt students, this course incorporates several different chamber experiences for brass players, ranging from duo to a large ensemble of 10–20 brass players. Performs concert repertoire from the late Renaissance to Contemporary. At least one formal concert is presented each semester. [½ or 1] (Not currently offered)

MUSE 207. Saxophone Ensemble. Open by consent of instructor. [1] Utley.

MUSE 209. Harp Ensemble. Open by consent of instructor. [1] Shaffer.

MUSE 210. Percussion Ensemble. Open by consent of instructor to all Vanderbilt percussionists, this ensemble performs repertoire from the 1930s (works by composers such as Harrison, Cowell, Cage, et al.) to the current influences of De La Guarda, Blue Man Group, technology, multi-media, and broad theatrical concepts. Group sizes and use of a conductor vary according to repertoire. At least one formal concert per semester. [1] Holland.

MUSE 212. Fiddle Ensemble. Open by audition to all Vanderbilt students with fiddling experience. One hour weekly coaching by visiting fiddlers from the community. Fiddle tunes, harmonies, and improvisation ideas in various styles of fiddle music, including old-time, bluegrass, swing, Celtic, and contemporary. One performance each semester. [1] Combs, Plohman.

MUSE 215. Chamber Music: Percussion. 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. [½ or 1] Holland, Wiggins.

MUSE 221. Instrumental Chamber Music. 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: ½, 1, or 2 each semester] Dorfman, Hauser, Jackson, Kochanowski, Kolkay, Long, Melissa Rose, performance faculty.

MUSE 222. Chamber Music: Instrumental Accompanying. Introduces pianists to collaboration with instrumentalists. Weekly coaching with piano instructor and five hours practice/rehearsal per week. Standard instrumental repertoire will be assigned. Open by consent of instructor. [Variable credit: ½, 1, or 2 each semester] Dorfman, Nies, Melissa Rose.

MUSE 223. Chamber Music: Sonata Class for Strings and Piano. Open by consent of instructor. Two hours of class and at least one hour of additional rehearsal each week. [Variable credit: 1 or 2 each semester] Dorfman, Plummer.

MUSE 224. Chamber Music: String Quartet. Open by consent of instructor. One hour of coaching and at least two hours of additional rehearsal each week. [Variable credit: ½, 1, or 2 each semester] Kochanowski.

MUSE 225. Chamber Music: Brass Quintet. Open by consent of instructor. [½ or 1] Cox, Long.

MUSE 226. Chamber Music: Woodwind Quintet. Open by consent of instructor. [½ or 1] Dikeman, Hauser, Jackson, Kolkay.

Music Literature and History

MUSL 103. Musical Theatre in America: A Cultural History. 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)

MUSL 115F. First-Year Writing Seminar. 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.

MUSL 121W. Music in Western Culture. 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. students, declared music minors/second majors, or with demonstrated musical literacy and permission of instructor. SPRING. [3] Musicology faculty.

MUSL 122. Music as Global Culture. 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 160. Prerequisite: Open to B.Mus. students, declared second majors, or with demonstrated musical literacy and permission of instructor. FALL. [3] Fry.

MUSL 140. Introduction to Music Literature. An introduction to the literature of music from 600 C.E. to the present through a study of selected works. Extensive listening is required. Not open to students who have completed MUSL 121W or 141. Does not count toward a major in music. FALL, SPRING. [3] Hime.

MUSL 141. Survey of Music Literature. A genre-based study of music of the Western Art tradition in comparative contexts. Selected non-Western repertory. Emphasis on aural analysis and on writing and research techniques. Designed for music majors, minors, and others with appropriate musical background. Not open to students who have completed MUSL 140. [3]. (Not currently offered)

MUSL 143. The Concerto. 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)

MUSL 144. The Symphony. Orchestral literature with emphasis on the evolution of symphonic form and style, through the study of selected masterworks of the standard repertoire. FALL. [3] Hime, Michael Rose.

MUSL 145. Survey of Choral Music. Choral literature, sacred and secular, from the Renaissance to the present, with emphasis on a study of selected masterworks from each period. SPRING. [3] Hime.

MUSL 147. American Music. 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 121W, 140, or 141, or music-reading skills sufficient to follow a score. FALL. [3] Lovensheimer.

MUSL 148. Survey of Jazz. 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.

MUSL 149. American Popular Music. 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. SPRING. [3] Fry.

MUSL 151. The Blues. 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.

MUSL 152. Country Music. 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.

MUSL 153. History of Rock Music. 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.

MUSL 154. Music and the Fall of Segregation. A study of how music, specifically swing and jazz from the 1930s and '40s, rock & roll and rhythm & blues in the 1950s, and soul music in the 1960s, impacted segregation and the Civil Rights Movement. Case studies and personal reflections from the perspective of a studio musician, record producer, and record company executive. Films, recordings, and oral histories of artists and producers. FALL, SPRING. [3] Buckingham.

MUSL 160. World Music. 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 122. FALL. [3] Barz, Fry.

MUSL 171. African Music. A survey of selected traditional and popular music of Africa. Historical, social, and cultural contexts; listening; some performances in class. SPRING. [3] Barz.

MUSL 183. Music, the Arts, and Ideas. The changing historical relationships among music, literature, fine arts, and philosophy. Musical developments as responses to social, political, and economic circumstances. FALL. [3] Link.

MUSL 184. Love and Death in Music. 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)

MUSL 185. Ethics and Music. Diverse ways in which Western musical works have communicated values about what kind of life to live. Contrasting themes include goodness and amorality, holiness and the allure of the sensuous. Investigations of historical styles and genres, composers' philosophical outlooks, and music's various functions in society. Consideration of changing performance practices and differing ideological responses to music. No musical background required. [3] Michael Rose. (Not currently offered)

MUSL 200. Women and Music. 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. Recommended: MUSL 121W, 140, or 141 or familiarity with the style periods of classical Western music. FALL. [3] Cyrus. (Offered alternate years)

MUSL 201. Music, Gender, and Sexuality. 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. Prerequisite: MUSL 121W, 140 or 141 and ability to read a score. SPRING. [3] Lowe. (Offered alternate years)

MUSL 219. The Bible and Music. 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. [3] (Not currently offered)

MUSL 221A. Opera in the 17th and 18th Centuries. 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.

B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. Not open to students who completed MUSL 221 prior to Fall 2011. FALL. [3] Calico.

MUSL 221B. Opera in the 19th Century. 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. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. Serves as repeat credit for MUSL 221. FALL. [3] Calico.

MUSL 222. Mahler Symphonies: Songs of Irony. 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. Prerequisite: B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Lovensheimer.

MUSL 223. Music in the Age of Beethoven and Schubert. The musical legacy of each composer in culture and (especially) social context: patrons, family, and friends. Prerequisite: B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Cyrus, Lowe. (Offered alternate years)

MUSL 224. Haydn and Mozart. An in-depth look at the music of Haydn and Mozart in cultural and social contexts. Prerequisite: B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Lowe.

MUSL 225. Brahms and the Anxiety of Influence. A study of Brahms' large-scale orchestral works and other selected literature from the perspective of "influence." Musical relationships to Couperin, J. S. 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. Prerequisite: B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Cyrus. (Offered alternate years)

MUSL 226. The String Quartet. 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. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Lowe.

MUSL 227. Music in the Age of Revolution, 1789–1848. 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. Prerequisite: B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Calico.

MUSL 228. J. S. Bach: Learned Musician & Virtual Traveler. 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. Prerequisite: B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. SPRING. [3] Staff.

MUSL 229. Robert Schumann and the Romantic Sensibility. An exploration of Robert Schumann's music and criticism within the context of German Romanticism. B.Mus. students and second majors, MUSL 121W, 122, and 239; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Lovensheimer.

MUSL 239. Music of the 20th and 21st Centuries. 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. students and second majors, MUSL 121W and 122; music minors, MUSL 121W or 140; or permission of instructor. FALL. [3] Calico.

MUSL 242. Music of the Middle Ages and Renaissance. An in-depth study of music of the Middle Ages and Renaissance with particular emphasis on social, religious, economic, and performance history. Cross-cultural perspectives, both historic and modern. Exploration of a variety of writing styles and approaches. Prerequisite: 140 or 141. (Not currently offered)

MUSL 243. Music of the Baroque and Classic Eras. An in-depth study of music and its historical, cultural, political, and performance contexts in the Baroque and Classic Eras. Development of research and writing skills. Prerequisite: MUSL 122 or 242. [3] (Not currently offered)

MUSL 244. Music of the Romantic and Modern Eras. An in-depth study of music from the Romantic period to the present. Emphasis on reception history and historical, cultural, political, and performance contexts. Refinement of research and writing skills. Prerequisite: 243. Non-B.Mus. students may petition to use 140 or 141 as a prerequisite. [3] (Not currently offered)

MUSL 245. Art Music of the United States after 1900. An in-depth exploration of twentieth- and twenty-first-century art music of the United States, from Charles Ives to the present. Prerequisite: MUSC 172 or 220, and MUSL 122 or 147 or 244. SPRING. [3] Lovensheimer. (Offered alternate years)

MUSL 247. Opera. 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: 140 or 141. SPRING. [3] Calico. (Not currently offered; replaced by MUSL 221A, B)

MUSL 250. Music in Latin America and the Caribbean. 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.

MUSL 252. Afropop. Historical survey of the unique development of modern African popular music from its roots within syncretic dance/art forms. Topics include Cuban retentions, synthesis of African and European styles, blues, soukous, kwasa kwasa, samba, highlife, palm wine, juju, taarab, bubblegum, marabi, and the contemporary return to earlier styles. Prerequisite: Any MUSL course. [3] (Not currently offered)

MUSL 253. Women and Rock Music. 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 WGS course. SPRING. [3] Gunderman.

MUSL 261. Music, Identity, and Diversity. 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 100. FALL. [3] Simonett.

MUSL 262. Music of the South. 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 100. FALL. [3] Fry. (Offered alternate years)

MUSL 263. American Music and Society: The 1960s. Examines from an interdisciplinary perspective American social issues, the political sphere, and music in the dynamic and generation-shaping 1960s. Books, articles, memoirs, documentaries, movies, and music critically analyzed and interpreted. No technical musical knowledge required. [3] (Not currently offered)

MUSL 264. Exploring the Film Soundtrack. 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.

MUSL 265. Music City Museums and Memorabilia: Popular Music and Tourism. 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.

MUSL 288. Academic Research and Writing in Music. Intensive development of a musicology research project already in progress (such as a term paper, grant proposal, etc.). Focus on research methods in musicology and effective academic writing. Instruction centers on peer review and editing, guided research, and analysis of research, writing, and editing processes. Students will also develop an academic curriculum vita. Projects must be approved by the instructor before students register. Prerequisite: MUSL 121A or MUSL 141 or permission of the instructor. May be repeated once for credit. [3] (Not currently offered)

MUSL 289. Independent Study. 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.

MUSL 294. Selected Topics in Music History. 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.

MUSL 298. Senior Thesis. 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 239 or 242-244. [Variable credit, 1–3 hours each semester; may be repeated once] Musicology faculty.

MUSL 299A. Senior Honors Thesis. 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.

MUSL 299B. Senior Honors Thesis. 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.

Other Music Courses

MUSO 099. First Year Music Seminar. 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. FALL, SPRING. [1] Staff.

MUSO 102. Computer Recording Technology Seminar. The digital recording revolution. Recording, editing, and mixing music, using both audio and MIDI sequencing data inside the computer. Remixing techniques with universal plug-in software. Sampling, synthesis, and dissection of studio projects. FALL, SPRING. [2] Wilder.

MUSO 104A. Lyric Theatre Workshop I. 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. SPRING. [1] Shay.

MUSO 104B. Lyric Theatre Workshop II. Various performance elements of the lyric theatre experience: acting, movement, improvisation, use of the voice, stage combat, and scene study. Pre-requisite: MUSO 104A. SPRING. [1] Shay.

MUSO 104C. Lyric Theatre Workshop for Instrumentalists. 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.

MUSO 114. Fingerboard Harmony. Advanced guitar skills: modal positions, modal patterns, score reading, arpeggios, transposition, and chord progressions. Prerequisite: MUSP 104B or permission of instructor. FALL, SPRING. [1] Phillips

MUSO 116. Viola for Violinists. 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.

MUSO 117. Baroque Performance for Strings. 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] (Not currently offered)

MUSO 131. Elements of Jazz Improvisation. Introduction to the techniques of jazz improvisation. Development of basic performing techniques in various styles. Prerequisite: MUSC 131A. May be repeated for credit. FALL, SPRING, SUMMER. [1] Billy Adair, Johnson, Spencer.

MUSO 133. Jazz Private Instruction. 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. students. May be repeated for credit. Prerequisite: 131 or 132. FALL, SPRING. [Variable credit: 1–2 each semester. Multiple section enrollment possible. Students may accrue up to 6 credits per semester of enrollment]. Dudley, Johnson, Kimbrough, Phillips, Solee.

MUSO 151. Woodwind Seminar. Fundamentals of woodwind playing with emphasis on tone, intonation, practice and rehearsal techniques, musicianship, and the psychology of performance. Includes in-class performance and critique. Required of all woodwind performance majors. [1] (Not currently offered)

MUSO 152. Brass Seminar. Fundamentals of brass playing; an overview of basic techniques. An in-depth study of non-traditional notation, performance practice, and ensemble rehearsal techniques. Required of all brass performance majors. Open only to music majors. SPRING. [2] Wilson. (Offered alternate years)

MUSO 153. Percussion Seminar. 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. FALL. [1] Wiggins.

MUSO 159. Diction for Singers: English and Italian. An introduction to the International Phonetic Alphabet as applied to lyric English and Italian diction. FALL. [1] Montgomery.

MUSO 159C. Diction for Singers: German. High German diction, using the International Phonetic Alphabet. Prerequisite: 159 or permission of the instructor. SPRING. [1] Montgomery.

MUSO 159D. Diction for Singers: French. French stage diction, using the International Phonetic Alphabet. Prerequisite: 159 or permission of the instructor. FALL. [1] Montgomery.

MUSO 161. Music and Cognition. 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] (Not currently offered)

MUSO 200. Music Criticism and Writing. 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. Prerequisite: MUSL 121W and 122, or permission of instructor. FALL. [2] Pitcher.

Musicians' Wellness

MUSO 162. The Alexander Technique. 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.

MUSO 163. The Performer and the Body. Application of the Alexander technique in a small group setting with attention to individuals and their particular performance modes, i.e., public speaking, singing, dancing, acting, playing an instrument. Offered on a pass/fail basis. May be repeated once for credit. Prerequisite: MUSO 162. FALL, SPRING. [1] Ahner

MUSO 164. Meditation for Musicians. A practice-centered approach helps students develop a regular meditation routine. Each weekly session involves meditation, in-class reading, listening, and performance. Prerequisite: Open to music majors and minors. Offered on a pass/fail basis. FALL, SPRING. [1] Joshua McGuire.

MUSO 165. Tai Chi for Musicians. 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. FALL, SPRING. [1] Phillips.

Arts Advocacy, Career Development, and Entrepreneurship

MUSO 100. The Business of Music. 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.

MUSO 106. Building Communities Through Music and the Arts. 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, SPRING [1] Korn.

MUSO 107. Creating Mission-Driven Arts and Social Programming. 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.

MUSO 201. Career Preparedness: The Business of a Music Professional. Prepares students for a career in music and its related fields. Emphasis on essential skills for resumé writing, financial management, interviewing/auditioning, media relations, copyright/ownership, career adaptability, and developing an artistic vision. Prerequisite: Senior bachelor of music students only. FALL [1], Korn.

MUSO 233. 21st Century Artistry: Advanced Skills in Live Performance, Technology and Communication. 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: MUSC 173 or permission of instructor. FALL. [3] Korn.

Music Courses Abroad

MUSO 230. Collaborative Composition in London. Exchange program with the Royal Academy of Music, London. Collaborative workshop between student composers and performers at both schools, with faculty mentorship. Travel to London over spring break (vouchers available), hosting of RAM students at Blair the following week. Enrollment by audition. SPRING. [1] Michael Rose and Peter Sheppard Skaerved (RAM). (Offered alternate years)

MUSO 231. Performance in Practice, IES Vienna. 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.

MUSO 232. Vanderbilt Music Académie. Holistic approach to intensive performance study through cultural immersion in residence with Vanderbilt in France in Aix-en-Provence. Large ensemble, chamber music, master classes, private instruction with performances and public coachings each week. Artistic introspection and cultural exploration through French classes, excursions, and activities. SUMMER. [2] Verrier.

Orchestral Repertoire

MUSO 251. Woodwind Orchestral Repertoire. Exploration of the standard orchestral repertoire with emphasis on performance practice. Performance of selected excerpts, coached and conducted. Not recommended for freshmen. May be repeated for credit. SPRING. [1] Woodwind faculty.

MUSO 252. Brass Orchestral Repertoire. 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. FALL. [1] Wilson.

MUSO 253A. Orchestral Repertoire for Percussion. 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. SPRING. [1] Wiggins. (Offered alternate years)

MUSO 253B. Orchestral Repertoire for Timpani. Exploration of the standard orchestral repertoire for timpani. Emphasis on score analysis, editing, stick selection, and performance practice. Selected excerpts coached and conducted. FALL. [1] Wiggins. (Offered alternate years)

MUSO 254A. String and Harp Orchestral Repertoire. 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. [1] Iwasaki, Mansell, Plummer, Reinker, Reist, Wanner, Shaffer.

Instrument Literature

MUSO 256A. Piano Literature I. 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. SPRING. [2] Nies, Wait. (Offered alternate years)

MUSO 256B. Piano Literature II. 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. FALL. [2] Nies, Wait. (Offered alternate years)

MUSO 257. Organ Literature. Survey of organ literature from 1500 to the present. Reading and listening, with special attention to organ registration pertaining to nationality and time period. [2] Carl Smith. (Not currently offered)

MUSO 258. Guitar Literature. Survey of literature for the classical guitar from the sixteenth century to the twentieth century. Various systems of notation including lute and vihuela are explored. FALL. [2] Johns. (Offered alternate years)

MUSO 259. Vocal Literature. 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: MUSC 173, MUSL 121W. Corequisite: MUSP 289 or MUSR 289. FALL. [2] Jarman, Retzlaff. (Offered alternate years)

Conducting

MUSO 261. Conducting. 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 171E, MUSC 132B or 133B, and MUSC 173. FALL, SPRING. [2] Fountain, P. Schneller, Verrier.

MUSO 262. Instrumental Conducting. Expansion of basic skills to include longer and more complex musical structures; expanded ability in analysis, memorization, and interpretation; significant independent preparation. Prerequisite: 261 and consent of instructor. [2] SPRING. Fountain.

MUSO 263. Choral Conducting. Choral conducting and rehearsal techniques, score reading and analysis, methods, and materials of choral music. Prerequisite: 261 and consent of instructor. SPRING. [2] Biddlecombe. (Offered alternate years)

Pedagogy

MUSO 265A. Suzuki Violin Pedagogy. 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] Carol Smith. (Offered alternate years)

MUSO 265B. Suzuki Violin Pedagogy. 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: MUSO 265A. SPRING. [3] Carol Smith. (Offered alternate years)

MUSO 266. Piano Pedagogy. Principles and procedures of teaching piano. Individual and group instruction techniques observed and discussed. Practicum with private students. Designed for piano majors; others admitted with consent of instructor. FALL. [2] Krieger. (Offered alternate years)

MUSO 267. Organ Pedagogy. Review of organ methods and resource materials for piano and/or organ that describe the development of technique. Practicum with a private student. [2] Carl Smith. (Not currently offered)

MUSO 268. Guitar Pedagogy. Principles and procedures of teaching classical guitar. Instructional methods and their applications with different age levels. Attention given to individual and group instruction. SPRING. [2] Johns. (Offered alternate years)

MUSO 269. Vocal Pedagogy. Principles and procedures of teaching voice. Psychological and physiological approaches. Practicum with private students. Prerequisite: Two years of voice study. FALL. [2] Retzlaff, Shay. (Offered alternate years)

MUSO 271. Pedagogy Practicum. 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] Staff.

Independent Study and Internships

MUSO 280A. Music Internship (1 credit hour). Academic research and writing related to a corequisite 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 hour per semester of enrollment. FALL, SPRING. [1].

MUSO 280B. Music Internship (3 credit hours). An extensive academic program of study related to a corequisite 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 credit hours per semester of enrollment. FALL, SPRING, SUMMER. [3].

MUSO 280C. Summer Music Internship. Academic research and writing related to a corequisite 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 hour per semester of enrollment. SUMMER. [1].

MUSO 281. Pedagogy Internship. 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: MUSO 256, 257, 258, 259, or 289 (in field) and 266, 267, 268, or 269 (in field). [Repeatable for credit, variable 1–3 hours each semester] Staff.

MUSO 289. Independent Study. 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.

Non-Credit Requirements (all courses are repeatable)

MUSO 108. Recital Attendance. 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.

MUSO 109A. Flute Performance Class. Weekly observation and participation. Required of all flute majors, performance and musical arts. Offered on a pass/fail basis. [0] Dikeman.

MUSO 109B. Violin Performance/Studio Class. Weekly observation and participation. Required of all violin majors, performance and musical arts. Offered on a pass/fail basis. [0] Heard, Huebl, and Teal.

MUSO 109C. Cello Performance Class. Weekly observation and participation. Required of all cello majors, performance and musical arts. Offered on a pass/fail basis. [0] Wang.

MUSO 109D. Piano Performance Class. Weekly observation and participation. Required of all piano majors, performance and musical arts. Offered on a pass/fail basis. [0] Nies.

MUSO 109E. Guitar Performance Class. Weekly observation and participation. Required of all guitar majors, performance and musical arts. Offered on a pass/fail basis. [0] Johns, Phillips.

MUSO 109F. Vocal Performance Class. Weekly observation and participation. Required of all voice majors, performance and musical arts. Offered on a pass/fail basis. [0] Voice faculty.

MUSO 109G. Viola Performance Class. Weekly observation and participation. Required of all viola majors, performance and musical arts. Offered on a pass/fail basis. [0] Kochanowski, Plummer.

MUSO 109L. Bass Performance Class. Weekly observation and participation. Required of all bass majors, performance and musical arts. Offered on a pass/fail basis. [0] Reist, Wanner.

MUSO 110A. Trumpet Performance Class. Weekly observation and participation. Required of all trumpet and horn majors, performance and musical arts. Offered on a pass/fail basis. [0] Cox.

MUSO 110B. Low Brass Performance Class. Weekly observation and participation. Required of all euphonium and tuba majors, performance and musical arts. Offered on a pass/fail basis. [0] Long.

MUSO 110D. Oboe Performance Class. Weekly observation and participation. Required of all oboe majors, performance and musical arts. Offered on a pass/fail basis. [0] Jared Hauser.

MUSO 110E. Bassoon Performance Class. Weekly observation and participation. Required of all bassoon majors, performance and musical arts. Offered on a pass/fail basis. [0] Kolkay.

MUSO 110F. Clarinet Performance Class. Weekly observation and participation. Required of all clarinet majors, performance and musical arts. Offered on a pass/fail basis. [0] Jackson.

MUSO 110G. Percussion Performance Class. Weekly observation and participation. Required of all percussion majors, performance and musical arts. Offered on a pass/fail basis. [0] Wiggins.

MUSO 110L. Saxophone Performance Class. Weekly observation and participation. Required of saxophone majors, performance and musical arts. Offered on a pass/fail basis. [0] Utley.

MUSO 111A. Horn Performance Class. Weekly observation and participation. Required of horn majors, performance and musical arts. Offered on a pass/fail basis. [0] Norton.

MUSO 111B. Trombone Performance Class. Weekly observation and participation. Required of all trombone majors, performance and musical arts. Offered on a pass/fail basis. [0] Wilson.

MUSO 111C. Composition Studio Class. Weekly observation and participation. Required of all composition majors. Offered on a pass/fail basis. [0] Slayton, Link, Kurek, Michael Rose.

Performance Instruction

Group Performance Instruction

MUSP 102A. Introduction to Piano I. 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. students. FALL, SPRING. [1] Wade.

MUSP 102B. Introduction to Piano II. 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: MUSP 102A or permission of instructor. Fees apply. Not open to B.Mus. students. FALL, SPRING. [1] Wade.

MUSP 104A. Introduction to Guitar I. 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. students. [1] Phillips.

MUSP 104B. Introduction to Guitar II. 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: MUSP 104A or permission of instructor. Fees apply to non-B.Mus. students. [1] Phillips.

MUSP 105A. Introduction to Percussion. 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. students. [1] Holland.

MUSP 107A. Introduction to Fiddle I. Designed for those with no experience in fiddle playing. Technical, stylistic, and historical elements involved in fiddling, as well as basic notation and idiomatic techniques. Fees apply to non-B.Mus. students. [1] Combs, Plohman.

MUSP 109A. Introduction to Steel Pan/Drum. Designed for those with no experience in playing steel pan/drum. A foundation of basic techniques, Caribbean song styles (Calypso, Soca, Reggae), history and development of the steel band art form, and cultural awareness. One 60-minute group lesson weekly. Fees apply to non-B.Mus. students. FALL, SPRING, SUMMER. [1] Britain.

Individual Performance Instruction

Courses are repeatable. Students may accrue up to four credit hours per semester of enrollment.

MUSP 171. Flute. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Dikeman, Miles.

MUSP 172. Oboe. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Hauser, Wiesmeyer.

MUSP 173. Clarinet. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Jackson, Lee.

MUSP 174. Saxophone. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor]Utley.

MUSP 175. Bassoon. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Kolkay, Estill.

MUSP 176. Horn. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Norton.

MUSP 177. Trumpet. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Cox, Kunkee.

MUSP 178. Trombone. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Wilson.

MUSP 179. Tuba. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by audition only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Long.

MUSP 180. Percussion. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Holland, Phillips, Steinquest, Wiggins.

MUSP 180A. Drumset (elective credit). 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. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Phillips.

MUSP 181. Harp. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only.

Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Shaffer.

MUSP 182. Violin. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Blackwell, S. Chang, W. Chang, Clarke, Heard, Huebl, Teal, Vanosdale.

MUSP 183. Viola. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Kochanowski, Plummer, Reinker.

MUSP 184. Cello. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Cassel, Mansell, Wang.

MUSP 185. Double Bass. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Meyer, Reist, Wanner.

MUSP 186. Piano. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Coplan, Dorfman, Koutsoukos, Krieger, Middleton, Nies, Reagan, R. Schneller, Wade, Walker.

MUSP 187. Organ. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students.[1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Carl Smith.

MUSP 188. Guitar. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Johns, Phillips.

MUSP 189. Voice. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview only. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Jarman, Montgomery, Prentice, Retzlaff, Shay.

MUSP 190. Euphonium. Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open to new students by interview. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Long.

MUSP 192. Fiddle. 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. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Combs, Plohman.

MUSP 193. Harpsichord. 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 and for General Music Minors. Fees apply to non-B.Mus. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Brecht, Carl Smith.

MUSP 194. Dulcimer. 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. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Rowe.

MUSP 195. Mandolin. 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. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Pearcy

MUSP 197. Banjo. 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. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Brown.

MUSP 198. Steel Drum. 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. students. [1–2 variable hours, based on lesson length and repertoire as agreed on with instructor] Britain.

MUSP 271. Flute (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Dikeman.

MUSP 272. Oboe (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Hauser.

MUSP 273. Clarinet (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Jackson.

MUSP 274. Saxophone (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Utley.

MUSP 275. Bassoon (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Kolkay.

MUSP 276. Horn (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Norton.

MUSP 277. Trumpet (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Cox.

MUSP 278. Trombone (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Wilson.

MUSP 279. Tuba (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Long.

MUSP 280. Percussion (Musical Arts Juniors/Seniors). 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 musical arts juniors and seniors, and for elective credit to percussion performance juniors and seniors. [2] Wiggins.

MUSP 281. Harp (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis

on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Shaffer.

MUSP 282. Violin (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Heard, Huebl, Teal.

MUSP 283. Viola (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Kochanowski, Plummer.

MUSP 284. Cello (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Wang.

MUSP 285. Double Bass (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Meyer, Reist, Wanner.

MUSP 286. Piano (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Dorfman, Krieger, Nies.

MUSP 287. Organ (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Carl Smith.

MUSP 288. Guitar (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Johns.

MUSP 289. Voice (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Jarman, Retzlaff, Shay.

MUSP 290. Euphonium (Musical Arts Juniors/Seniors). Individual instruction focused on the art and practice of the instrument, with emphasis on tone quality, technique, rhythm, interpretation, and literature. Open only to musical arts juniors and seniors. [2] Long.

MUSR 171. Flute (Performance Majors Freshmen/Sophomores). 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] Dikeman.

MUSR 172. Oboe (Performance Majors Freshmen/Sophomores). 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.

MUSR 173. Clarinet (Performance Majors Freshmen/Sophomores). 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.

MUSR 174. Saxophone (Performance Majors Freshmen/Sophomores). 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.

MUSR 175. Bassoon (Performance Majors Freshmen/Sophomores). 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.

MUSR 176. Horn (Performance Majors Freshmen/Sophomores). 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

MUSR 177. Trumpet (Performance Majors Freshmen/Sophomores). 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] Cox.

MUSR 178. Trombone (Performance Majors Freshmen/Sophomores). 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.

MUSR 179. Tuba (Performance Majors Freshmen/Sophomores). 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.

MUSR 180. Percussion (Performance Majors Freshmen/Sophomores). 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] Wiggins.

MUSR 181. Harp (Performance Majors Freshmen/Sophomores). 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.

MUSR 182. Violin (Performance Majors Freshmen/Sophomores). 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, Teal.

MUSR 183. Viola (Performance Majors Freshmen/Sophomores). 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.

MUSR 184. Cello (Performance Majors Freshmen/Sophomores). 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.

MUSR 185. Double Bass (Performance Majors Freshmen/Sophomores). 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.

MUSR 186. Piano (Performance Majors Freshmen/Sophomores). 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.

MUSR 187. Organ (Performance Majors Freshmen/Sophomores). 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] Carl Smith.

MUSR 188. Guitar (Performance Majors Freshmen/Sophomores). 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] Johns.

MUSR 189. Voice (Performance Majors Freshmen/Sophomores). 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, Retzlaff, Shay.

MUSR 190. Euphonium (Performance Majors Freshmen/Sophomores). 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.

MUSR 271. Flute (Performance Majors Juniors/Seniors). 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] Dikeman.

MUSR 272. Oboe (Performance Majors Juniors/Seniors). 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.

MUSR 273. Clarinet (Performance Majors Juniors/Seniors). 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.

MUSR 274. Saxophone (Performance Majors Juniors/Seniors). 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.

MUSR 275. Bassoon (Performance Majors Juniors/Seniors). 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.

MUSR 276. Horn (Performance Majors Juniors/Seniors). 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

MUSR 277. Trumpet (Performance Majors Juniors/Seniors). 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] Cox.

MUSR 278. Trombone (Performance Majors Juniors/Seniors). 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.

MUSR 279. Tuba (Performance Majors Juniors/Seniors). 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.

MUSR 280. Percussion (Performance Majors Juniors/Seniors). 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] Wiggins.

MUSR 281. Harp (Performance Majors Juniors/Seniors). 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.

MUSR 282. Violin (Performance Majors Juniors/Seniors). 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, Teal.

MUSR 283. Viola (Performance Majors Juniors/Seniors). 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.

MUSR 284. Cello (Performance Majors Juniors/Seniors). 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.

MUSR 285. Double Bass (Performance Majors Juniors/Seniors). 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.

MUSR 286. Piano (Performance Majors Juniors/Seniors). 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.

MUSR 287. Organ (Performance Majors Juniors/Seniors). 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] Carl Smith.

MUSR 288. Guitar (Performance Majors Juniors/Seniors). 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] Johns.

MUSR 289. Voice (Performance Majors Juniors/Seniors). 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, Retzlaff, Shay.

MUSR 290. Euphonium (Performance Majors Juniors/Seniors). 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.

Recitals

MUSR 295. Junior Recital. 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]

MUSR 299. Senior Recital. See Blair Academic Regulations section of the Undergraduate Catalog for detailed requirements. Open by permission of instructor. [1]

Teacher Education

MUST 101. Woodwinds Class. 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.

MUST 102. Brass Class. 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] Gavin Smith.

MUST 103. Strings Class. 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.

MUST 104. Percussion Class. 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] Holland.

MUST 105. Introduction to Classroom Instruments. Development of performance skills and teaching methods for instruments such as recorder, Orff, classroom percussion, and others. Includes methods and materials for elementary general music, emphasizing development of children's ability to sing and play classroom instruments. Open only to B.Mus students, or permission of instructor. SPRING. [1] Alley.

MUST 106. Child and Adolescent Voices. A study of the vocal development and maturity of children from pre-K through high school with an emphasis on healthy production, pitch-matching skills, learning styles, warm-up exercises, the changing voice in boys and girls, and examples of appropriate literature. Open only to B.Mus students, or permission of instructor. SPRING. [1] P. Schneller

MUST 107. Secondary Instrument Lab. Development of performance skills and teaching methods on a secondary instrument while in an ensemble setting. Includes methodologies prescribed for teaching secondary band and orchestra. Open only to B. Mus students, or permission of instructor. Prerequisite: MUST 101 or 102 and MUST 103. SPRING. [1] Perez.

MUST 211. Seminar in Teaching Choral Literature. Teaching techniques and knowledge of choral repertoire as applicable to K-12 choral programs. Tonal, harmonic, and melodic analysis, score marking and preparation, and classroom concerns. Repertoire drawn from the National 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: MUSC 171 and approval of instructor. SPRING. [2] P. Schneller. (Offered alternate years)

MUST 212. Seminar in Teaching Orchestra. 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: MUST 103 and MUSO 261, or permission of instructor. SPRING. [2] Wei-Tsun Chang. (Offered alternate years)

MUST 213. Seminar in Orff/Kodály Methods. Teaching general music with emphasis on Orff and Kodály principles and practices. Planning, instruction, and evaluation using techniques and materials from a variety of sources. FALL. [2] Ramsey. (Offered alternate years)

MUST 214. Seminar in Teaching Jazz Styles. 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. Prerequisite: MUSO 131 or permission of instructor. SPRING. [2] Billy Adair.

MUST 215. Seminar in Teaching Marching Band. Techniques and materials for Marching Band instruction. Organization, administration, literature, technology, auxiliary groups. Planning, writing, arranging and teaching half-time performances. Prerequisite or corequisite: MUSO 261 or permission of instructor; corequisite: participation in marching band. FALL. [2] Sagen.

MUST 216. Seminar in Teaching Musicianship. Principles and procedures involved in teaching aural musicianship to K-12 students, in both private and classroom environments. Lecture, discussion plus interactive activities that explore musical perception and cognition. Prerequisite: MUSC 173E. FALL. [2] Ploger. (Offered alternate years)

MUST 217. Seminar in Teaching Band. Knowledge of repertoire and teaching techniques as applicable to grades 4-12 band programs. Repertoire to be drawn from several states' standardized lists that employ comprehensive musicianship in teaching and meeting national standards. SPRING. [2] G. Smith.

MUST 250A. Practicum in Music Teaching. 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] Gavin Smith, Perez.

MUST 250B. Practicum in Music Teaching II. 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: MUST 250A. SPRING. [1] Gavin Smith, Perez.

MUST 250C. Practicum in Music Teaching III. 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: MUST 250B and any two from MUST 211-216. SPRING. [1] Perez, Gavin Smith.

MUST 300. Philosophical Foundations and Contemporary Issues in Music Teaching. A comprehensive study of historical trends and philosophies relevant to music teaching. Readings and discussions of the practical application of educational research studies to music teaching. SUMMER. [3] Perez.

MUST 317. Advanced Studies for the Wind Band Conductor. Knowledge of concert band repertoire as applicable to band programs from intermediate to advanced levels. Score preparation, rehearsal strategies, and expansion of conducting skills to include longer and more complex musical structures. Specific emphasis on developing historical and pedagogical context for repertoire evaluation and selection. Repertoire to encompass a broad range of genres, styles, and levels of difficulty. FALL. [2] Verrier.

MUST 320. Methods and Materials in Instrumental Music. Techniques and materials for teaching instrumental music from elementary through senior high school. Emphasizes instrumental organization, administration, pedagogical practices, and developing school instrumental music programs. FALL. [3] Verrier.

MUST 330. Methods and Materials in Vocal/Choral Music. Techniques and materials for teaching vocal/choral music from elementary through senior high school. Emphasizes vocal music organization, administration, and pedagogical practices. FALL. [3] Cassel.

MUST 340. Methods and Materials in General Music, PreK through 12. Techniques and materials for teaching general music, PreK through 12. Classroom organization, administration, pedagogical practices, and general musical activities such as Orff, Kodály, Dalcroze. FALL. [3] Alley.

Blair School of Music

MARK WAIT, D.M.A., Dean
MELISSA K. ROSE, D.M.A., Associate Dean, Collegiate Program
PAMELA SCHNELLER, M.C.M., Associate Dean, Precollege and Adult Program
DWAYNE SAGEN, Ph.D., Assistant Dean
ROBERT HALLIBURTON, B.S., C.P.A., Business Officer
CAROL DUNNE, M.M., Registrar, Collegiate Program
TRISHA JOHNS, B.M., Registrar, Precollege and Adult Program
JOSEPH DEBUSK, Director of Technical Operations
VIRGINIA PAYNE, B.A., Associate Dean for Blair Development and Alumni Relations
KRISTIN WHITTLESEY, B.A., Director of External Relations

Music Library Staff

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

Department Chairs

ALLAN COX, Brass and Percussion
CONNIE HEARD, Strings
JOHN JOHNS, Guitar and Harp
JARED HAUSER, Woodwinds
MELANIE LOWE, Music Literature/History
AMY K. JARMAN, Voice
MICHAEL SLAYTON, Composition/Theory
KAREN ANN KRIEGER and ROLAND SCHNELLER, Keyboard Co-Chairs

Faculty Coordinators

WILLIAM ADAIR, Jazz Studies
ROBIN FOUNTAIN, Ensembles
MICHAEL HIME and JAMA REAGAN, Music Minors
CHI-HEE HWANG, Group Piano
JOHN KOCHANOWSKI, String Chamber Music
JARED HAUSER, Woodwind Chamber Music
ROLAND SCHNELLER, Precollege Scholarships
CARL F. SMITH, JR., Music as a Second Major
CAROL F. SMITH, Suzuki Program
PAMELA SCHNELLER, Teacher Education Program

Committees of the School

ADMINISTRATIVE COUNCIL: Mark Wait, Chair. Norma Gandy, Robert Halliburton, Melissa Rose, Dwayne Sagen, Pamela Schneller, Kristin Whittlesey.

ADMISSIONS. Dwayne Sagen, Chair. Allan Cox, Amy Dorfman, Carolyn Huebl, Bil Jackson, John Johns, Jonathan Retzlaff, Melissa Rose, Michael Slayton, Tom Verrier.

AWARDS. Karen Ann Krieger, Chair. Melissa Rose, Pamela Schneller.

BMI COMPOSER-IN-RESIDENCE. Michael Kurek, Chair. Bil Jackson, Stan Link, Tom Verrier.

CALENDAR/CONCERTS. Kristin Whittlesey and Pamela Schneller, Co-Chairs. Tucker Biddlecombe, Christine Claffey, Joe DeBusk, Norma Gandy, Melissa Rose, Gayle Shay, Carol Smith, Christian Teal, Robert Thompson.

CAREER-RELATED PROGRAMMING. Robbie Fry, Chair. Jen Gunderman, Jared Hauser, Karen Ann Krieger, Sara Manus, Melissa Rose, Jeremy Wilson, Tiffany Franklin (Center for Student Professional Development).

CHAMBER MUSIC. Jared Hauser and Gil Long, Co-Chairs. Amy Dorfman, John Kochanowski, Peter Kolkay, Melissa Rose, Felix Wang.

COLLEGIATE ENSEMBLE DIRECTORS: Robin Fountain, Chair. Billy Adair, Kwame Ahima, Tucker Biddlecombe, Mat Britain, Michael Holland, Gayle Shay, Tom Verrier, David B. Williams.

CONCERTO COMPETITION. Felix Wang, Chair. Robin Fountain, Bil Jackson, Leslie Norton, Jama Reagan, William Wiggins.

CURRICULUM. Stan Link, Chair. Phil Dikeman, Robbie Fry, Connie Heard, Amy Jarman, Josh McGuire, Melissa Rose. Ex Officio: Carol Dunne.

DEPARTMENT CHAIRS. Mark Wait, Chair. Allan Cox, Brass and Percussion; Jared Hauser, Woodwinds; Cornelia Heard, Strings; John Johns, Guitar; Karen Ann Krieger, Co-Chair, Keyboard; Melanie Lowe, Music Literature/History; Marianne Ploger, Musicianship; Amy Jarman, Voice; Pamela Schneller, Precollege and Adult Program; Roland Schneller, Co-Chair, Keyboard; Michael Slayton, Composition/Theory; Ex Officio: Melissa Rose, Associate Dean.

FACULTY ADVISORY COUNCIL. Tucker Biddlecombe, Ben Harris, Michael Holland, Brian Utley.

FACULTY REVIEW. John Johns, Chair. Peter Kolkay, Marianne Ploger, Kathryn Plummer, Roland Schneller, Michael Slayton, Felix Wang.

FACULTY SENATE. Robin Fountain, Michael Slayton. Ex Officio: Mark Wait.

INTERNATIONAL STUDIES. Joy Calico, Melissa Rose.

MA5 ADVISORY. Pamela Schneller, Chair. Amy Alley, Tucker Biddlecombe, David Cassel, Frank Kirchner, Erin Charles Perez, Joe Rea Phillips, Gavin Smith.

MUSIC LIBRARY. Jama Reagan, Chair. ChiHee Hwang, Melanie Lowe, Jennifer McGuire, Michael Rose, Holling Smith-Borne.

PRECOLLEGE AND ADULT PROGRAM. Pamela Schneller, Chair. Mary Biddlecombe, Tucker Biddlecombe, Kirsten Cassel-Greer, Paul Deakin, ChiHee Hwang, Trisha Johns, Carol Nies, Crystal Plohman, Roland Schneller, Carol Smith.

PRECOLLEGE CERTIFICATE PROGRAM COUNCIL. Kirsten Cassel-Greer, Chair. Allan Cox, Paul Deakin, Cassie Lee, Kathryn Plummer, Jama Reagan, Pamela Schneller, Roland Schneller, Jeremy Wilson.

PRECOLLEGE SCHOLARSHIP COMMITTEE. Roland Schneller, Chair. Trisha Johns, Pamela Schneller, William Wiggins.

PRECOLLEGIATE ENSEMBLE DIRECTORS. Pamela Schneller, Chair. Mary Biddlecombe, Tucker Biddlecombe, Carol Nies, Carol Smith.

STUDENT SHOWCASE. Gayle Shay, Chair. Phil Dikeman, John Johns, John Kochanowski, Craig Nies, Jeremy Wilson.

TECHNOLOGY. Jennifer Daniel, Chair. Joe DeBusk, Carol Dunne, Norma Gandy, Michael Hime, Gil Long, Holling Smith-Borne, Kristin Whittlesey.

TENURE REVIEW. Allan Cox, Chair. Cynthia Cyrus, Robin Fountain, Connie Heard, Kathryn Plummer, Douglas Lee, Christian Teal.

WRITING PORTFOLIO ASSESSMENT/MARTIN WILLIAMS/MARSDEN AWARDS. Marianne Ploger, Chair. Melanie Lowe, Jim Lovensheimer.

Faculty

WILLIAM ADAIR, Senior Lecturer in Jazz
B.S. (Peabody 1970) [2002]
OKYEREMA G. AHIMA, Adjunct Instructor in Music
[2000]
SALLY R. AHNER, Lecturer in Music
B.A. (Salem College 1970); M.A. (Eastman 1974) [1987]
AMY A. ALLEY, Adjunct Artist Teacher of Kindermusik; Adjunct Lecturer in Teacher Education
B.M. (Tennessee 1977); M.M. (Peabody 1978) [2001]
MARTHA BARTLES, Adjunct Senior Artist Teacher of Piano
B.M. (Mississippi 1953); M.F.A. (Ohio 1954) [1997]
GREGORY F. BARZ, Associate Professor of Musicology (Ethnomusicology)
B.A. (North Carolina School of the Arts 1982); M.A. (Chicago 1992); Ph.D. (Brown 1997) [1998]
MARY BIDDLECOMBE, Adjunct Artist Teacher of Chorus
B.M.Ed. (SUNY, Potsdam 1999); M.M. (Florida State 2005) [2012]
TUCKER BIDDLECOMBE, Associate Professor of Choral Activities and Choral Director
B.M. (SUNY, Potsdam 1998); M.M., Ph.D. (Florida State 2003, 2012) [2012]
EMELYNE M. BINGHAM, Senior Lecturer in the Teaching of Music
B.S. (Tennessee Technological 1983); M.M. (Indiana, Bloomington 1986) [1986]
CHARLES BLACKMON, Lecturer in Music
B.A. (Middle Tennessee State 1996) [2010]
JESSICA BLACKWELL, Adjunct Artist Teacher of Violin
B.M. (Rice 2006); M.M. (Johns Hopkins 2008) [2009]
MAT BRITAIN, Adjunct Instructor in Music
B.M.Ed. (Wichita State 1985) [2004]
ALISON BROWN, Adjunct Artist Teacher of Banjo
A.B. (Harvard 1984); M.B.A. (California, Los Angeles 1986) [2010]
STEVE BUCKINGHAM, Adjunct Instructor in Music History
B.A. (Richmond 1971) [2009]
JOY H. CALICO, Associate Professor of Musicology; Director of the Max Kade Center for European and German Studies
B.M. (Baylor 1988); M.M. (Illinois 1992); Ph.D. (Duke 1999) [2003]
DAVID C. CASSEL, Adjunct Associate Professor of Music
B.M. (Bowling Green State 1967); M.M., D.M. (Indiana, Bloomington 1968, 1977) [1981]
SEANAD CHANG, Adjunct Artist Teacher of Violin/Viola
B.M. (Indiana, Bloomington 1988); M.M. (North Carolina School of the Arts 1991) [2006]
WEI TSUN CHANG, Adjunct Associate Professor of Violin
B.M. (Indiana, Bloomington 1988); M.M. (North Carolina School of the Arts 1991); D.M.A. (Michigan State 2006) [2006]
KAREN CLARKE, Adjunct Professor of Violin
B.M., M.M. (Johns Hopkins 1965, 1966) [2007]
DALE COCKRELL, Professor of Musicology, Emeritus
B.M., M.M., Ph.D. (Illinois 1971, 1973, 1978) [1996]
MATT COMBS, Adjunct Instructor in Fiddling and Violin and Director of the Fiddling Program
B.M. (Michigan 1997) [2004]
PETER COOPER, Senior Lecturer In Music History and Literature
B.A. (Wofford 1993) [2008]
LAUREN JACKSON COPLAN, Adjunct Artist Teacher of Piano
B.M. (Boston University 1991) [2012]
ELIZABETH F. CORMIER, Senior Artist Teacher of Piano, Emerita
A.B. (Smith 1947); B.M. (New England Conservatory 1950); M.A. (Columbia 1955) [1967]
ALLAN E. COX, Professor of Trumpet
B.M.E. (Nebraska 1968); M.M. (Wichita State 1970) [1998]
CYNTHIA J. CYRUS, Associate Provost of the University; Professor of Musicology
B.A. (Pomona 1984); M.A., Ph.D. (North Carolina 1987, 1990) [1994]
GARNETT R. DAVIS, Adjunct Assistant Professor of Tuba
B.S. (North Alabama 1968); M.M. (Indiana, Bloomington 1974) [1992]
PAUL DEAKIN, Senior Lecturer in Music Theory
B.A., Ph.D. (Birmingham [U.K.] 1990, 2002) [2004]
PHILIP DIKEMAN, Associate Professor of Flute
B.M. (Oberlin 1985); M.M. (Yale 1987) [2011]
AMY R. DORFMAN, Associate Professor of Piano
B.M., Performer's Certificate, M.M. (Indiana, Bloomington 1977, 1978, 1981) [1984]
BRUCE DUDLEY, Adjunct Instructor in Jazz Piano
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B.F.A. (Louisiana Tech 1975) [1997]
ROBIN P. FOUNTAIN, Professor of Conducting; Director of the Vanderbilt Orchestra
B.A., M.A. (Oxford [U.K.] 1981, 1982); M.F.A. (Carnegie Mellon 1986) [1994]
ROBERT WEBB FRY II, Senior Lecturer in Music History and Literature
B.M.Ed. (Henderson State 1998); M.M. (Ohio State 2004); Ph.D. (Florida State 2010) [2007]
KIRSTEN CASSEL GREER, Adjunct Artist Teacher of Cello
B.M. (South Carolina 2002); M.M. (Eastman 2005) [2006]
CONSTANCE ELY GUERIN, Adjunct Artist Teacher of Music and Director of the Young Singers of Blair
B.S. (Vanderbilt 1998) [2000]
JENNIFER GUNDERMAN, Senior Lecturer in Music History
B.A. (Vassar 1992); M.A. (University of Washington 1996) [2006]
ERIN HALL, Adjunct Artist Teacher of Violin
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BEN HARRIS, Senior Lecturer in Music
B.M. (Oklahoma Baptist 2000); M.M. (Baylor 2002) [2012]
JARED HAUSER, Assistant Professor of Oboe
B.M. (Michigan 1994); Artist's Diploma (Ohio State 1997); M.M. (Rice 1999) [2008]
LAURA HAUSER, Adjunct Artist Teacher of Bassoon
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CORNELIA L. HEARD, Valere Blair Potter Chair; Professor of Violin
B.M., M.M. (Juilliard 1978, 1979); B.A. (Sarah Lawrence 1980) [1982]
MICHAEL S. HIME, Senior Lecturer in Music Literature
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ERIN HORNER, Adjunct Artist Teacher of Horn
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BIL JACKSON, Associate Professor of Clarinet
[2011]
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JOHN F. JOHNS, Associate Professor of Guitar
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ELIZABETH JOHNSON, Adjunct Artist Teacher of Jazz Studies
B.S. (Illinois 1997) [2005]
SARA JOHNSON, Adjunct Artist Teacher of Suzuki Violin
B.S. (North Carolina, Greensboro 1974); M.F.A. (Iowa State 1977) [1997]
ENID KATAHN, Professor of Piano, Emerita
B.M. (Hartford 1955); M.M. (Peabody 1970) [1977]
JEROME J. KIMBROUGH, Adjunct Associate Professor of Guitar
B.M. (Miami 1982) [2006]
JANE B. KIRCHNER, Associate Professor of Flute, Emerita
B.M.E., M.M.E., Ed.S. (Peabody 1966, 1967, 1968) [1966]
JOHN KOCHANOWSKI, Associate Professor of Viola
[1987]

PETER KOLKAY, Associate Professor of Bassoon
B.M. (Lawrence 1998); M.M. (Eastman 2000); M.M.A., D.M.A. (Yale 2002, 2005) [2012]
MITCHELL KORN, Adjunct Professor of Music and Educational Outreach
B.A. (Bard [New York] 1974); M.A. (Columbia 1984) [2009]
SHEREE KOUTSOUKOS, Adjunct Artist Teacher of Piano
B.A. (Wartburg College 1996); M.M. (Notre Dame 1998) [2002]
KAREN A. KRIEGER, Associate Professor of Piano
B.A. (Western Illinois 1976); M.M. (Illinois 1978) [1988]
PATRICK KUNKEE, Adjunct Associiate Professor of Trumpet
B.M. (California State, Northridge 1987); M.M. (Southern California 1989) [1991]
MICHAEL H. KUREK, Associate Professor of Composition
B.M. (Tennessee 1977); M.M., A.Mus.D. (Michigan 1981, 1985) [1988]
ZADA LAW, Adjunct Artist Teacher of Dulcimer
B.M. (Indiana, Bloomington 1976); M.A. (Wisconsin 1980) [2006]
CASSANDRA D. LEE, Senior Artist Teacher of Clarinet
B.S. (Tennessee 1975); M.M. (Northwestern 1979) [1981]
DOUGLAS A. LEE, Professor of Musicology, Emeritus
B.M. (DePauw 1954); M.M., Ph.D. (Michigan 1958, 1968) [1986]
STANLEY B. LINK, Associate Professor of the Philosophy and Analysis of Music
B.M. (Oberlin 1986); M.F.A., Ph.D. (Princeton 1992, 1995) [1999]
GILBERT A. LONG, Adjunct Associate Professor of Tuba
B.M.A. (Louisville 1975) [1995]
JAMES LOVENSHEIMER, Associate Professor of Musicology
B.M. (Tennessee 1994); M.A., Ph.D. (Ohio State 1997, 2002) [2002]
MELANIE LOWE, Associate Professor of Musicology
B.A. (Smith 1990); M.F.A., Ph.D. (Princeton 1992, 1998) [1998]
BRADLEY D. MANSELL, Adjunct Artist Teacher of Cello
B.M. (Youngstown State 1982); M.M. (Cincinnati 1984) [1990]
MAUREEN MAY, Adjunct Instructor in Piano
B.M., M.M. (Belmont 1994, 2004) [2008]
JENNIFER MCGUIRE, Senior Lecturer in Collaborative Piano
B.M. (Shorter 2002); M.M., Artist's Diploma (Cincinnati 2005, 2006) [2009]
JOSHUA MCGUIRE, Senior Lecturer in Aural Skills
B.M. (Vanderbilt 2003); M.M. (Cincinnati 2005) [2007]
EDGAR A. MEYER, Adjunct Associate Professor of Bass
B.M. (Indiana, Bloomington 1983) [1984]
VALERIE MIDDLETON, Adjunct Senior Artist Teacher of Piano
B.M. (Yankton 1979); M.M. (Colorado 1983) [2007]
SARAH MILES, Adjunct Artist Teacher of Flute
B.M. (Louisiana State 2001); M.M., D.M.A. (Michigan State 2003, 2010) [2012]
CHERI MONTGOMERY, Lecturer in Voice
B.M., M.M. (Tennessee 1987, 1990) [2002]
CRAIG E. NELSON, Adjunct Assistant Professor of Bass
B.M. (Michigan) [2000]
CAROL R. NIES, Adjunct Senior Artist Teacher of Conducting
B.M. (Miami 1979); M.M. (Yale 1981) [1996]
CRAIG NIES, Associate Professor of Piano
B.M. (Curtis Institute of Music 1974); M.M., M.M.A. (Yale 1979, 1980); D.Mus.A. (Stony Brook 1991) [1991]
LESLIE B. NORTON, Associate Professor of French Horn
B.M., Performer's Certificate (Eastman 1984, 1984) [1989]
ROBERT W. PEARCY, Adjunct Associate Professor of Mandolin
[2009]
DERREK C. PHILLIPS, Adjunct Assistant Professor of Percussion
B.A. (William Paterson 1998) [2010]
JOE REA PHILLIPS, JR., Senior Artist Teacher of Guitar
M.S., B.S. (Peabody 1977, 1977) [1985]
MARIANNE PLOGER, Associate Professor of Music Perception and Cognition
B.M. (Missouri, Saint Louis 1976); M.M. (Michigan 1980) [2007]
CRYSTAL D. PLOHMAN, Senior Artist Teacher of Fiddling
[1994]
KATHRYN C. PLUMMER, Professor of Viola
B.M. (Indiana, Bloomington 1970) [1974]
MICHAEL PORTER, Adjunct Associate Professor of Music Business
B.A. (Trevecca Nazarene 2001) [2012]
TRACY S. PRENTICE, Adjunct Assistant Professor of Voice
B.M. (Alabama, Huntsville 1978); M.M. (Yale 1981) [1983]
SUSAN RAMSAY, Adjunct Artist Teacher of Orff/Kodály Methods
B.M.Ed. (Peabody 1975); M.M.A. (Middle Tennessee State 1982) [2009]
JAMA A. REAGAN, Senior Artist Teacher of Piano
B.M. (North Carolina School of the Arts 1987); Associate Diploma (Royal College of Music [England] 1992); Licentiate Diploma (Guildhall School of Music [U.K.] 1995) [1997]
DANIEL REINKER, Adjunct Associate Professor of Viola
B.M. (Cincinnati 1979); M.M. (Yale 1981) [2002]
JOEL REIST, Adjunct Assoicate Professor of Bass
B.F.A. (Carnegie Mellon 1993); M.M. (Rice 1996) [2004]
JONATHAN A. RETZLAFF, Associate Professor of Voice
B.M. (Millikan 1979); M.M. (Wichita State 1981); D.M.A. (Arizona State 1990) [1997]
MELISSA K. ROSE, Associate Dean, Collegiate Program; Associate Professor of Piano
B.M. (West Chester 1983); M.M. (Yale 1985); D.M.A. (Michigan 1988) [1996]
MICHAEL A. ROSE, Associate Professor of Composition
B.A., M.A. (Pennsylvania 1981, 1982); Ph.D. (Eastman 1985) [1986]
LEE ROWE, Adjunct Artist Teacher of Dulcimer
B.F.A. (Virginia Commonwealth 1987) [2006]
DWAYNE SAGEN, Adjunct Professor of Music; Assistant Dean for Admissions
B.M., M.M. (Northwestern 1968, 1969); Ph.D. (Iowa State 1978) [1994]
JOHN F. SAWYER, Dean of the Blair School of Music, Emeritus; Professor of Music Performance, Emeritus
B.M. (Mississippi 1953); M.M. (Peabody 1954) [1964]
PAMELA R. SCHNELLER, Associate Dean, Precollege and Adult Program; Senior Lecturer in Choral Music
B.S.M.E. (Illinois 1972); M.C.M. (Scarritt 1987) [1988]
ROLAND A. SCHNELLER, Chancellor's Chair for the Blair School; Senior Artist Teacher of Piano
B.M. (Mount Union 1961); M.M. (Indiana, Bloomington 1963) [1964]
MARIAN SHAFFER, Adjunct Professor of Harp
B.A. (Stephens 1972); M.A. (Memphis State 1974) [1996]
GAYLE SHAY, Associate Professor of Voice; Director of Vanderbilt Opera Theatre
B.A. (Luther 1986); M.M. (Maryland 1990); D.M.A. (Colorado 1998) [1998]
MICHAEL K. SLAYTON, Associate Professor of Composition and Theory
B.A. (Lipscomb 1994); M.M., D.M.A. (Houston 1996, 2000) [1999]
CARL F. SMITH, JR., Senior Lecturer in Music Composition and Theory
B.M. (Baldwin-Wallace 1971); M.M. (Washington University 1975) [1998]
CAROL F. SMITH, Senior Artist Teacher of Suzuki Violin; Director of the Suzuki Program
M.A.T. (Washington University 1975) [1997]
GAVIN SMITH, Lecturer in Teacher Education
B.M. (Texas Tech University 2002); M.M. (Kansas State 2007) [2008]
DENIS SOLEE, Adjunct Instructor in Jazz Saxophone
[2006]
ROGER A. SPENCER, Adjunct Artist Teacher of Jazz Ensemble
B.M.Ed. (Indiana State 1974) [2002]
BOBBY G. TAYLOR, Professor of Oboe, Emeritus
B.M.E. (Louisville 1962) [1969]
CHRISTIAN TEAL, Joseph Joachim Chair; Professor of Violin
B.M. (Indiana, Bloomington 1969); M.M. (Catholic University of America 1971) [1972]
CELESTE H. TUTEN, Senior Artist Teacher of Suzuki Violin
B.M.E. (Peabody 1974); M.Ed. (Memphis State 1976) [1990]
BRIAN UTLEY, Adjunct Associate Professor of Saxophone
B.M. (Murray State 1995); M.M., D.M.A. (Louisiana State 1997, 2001) [2010]
MARY KATHRYN VANOSDALE, Adjunct Assistant Professor of Violin
Performer's Certificate (Banff School of Fine Arts [Canada] 1982); M.M. (Northern Illinois 1984) [1985]

THOMAS E. VERRIER, Associate Professor and Director of Wind Studies; Director of Teacher Education
B.M. (Ithaca 1987); M.M. (California State 1994); D.M.A. (Colorado 1998) [2002]

AMANDA VIRELLES, Adjunct Artist Teacher of Piano
Bachelor (Professional School of Music, Holguin [Cuba] 1986); M.F.A. (Russian State Academy of Music 1993); M.M., D.M.A. (Southern Mississippi 2006, 2008) [2010]

PATSY WADE, Adjunct Artist Teacher of Piano
B.M. (Birmingham-Southern 1971); M.M. (Peabody 1972) [1998]

MARK WAIT, Martha Rivers Ingram Dean's Chair; Professor of Music and Dean of the Blair School of Music
B.M. (Wichita State 1971); M.M. (Kansas State 1973); D.M.A. (Johns Hopkins 1976) [1993]

DEANNA WALKER, Adjunct Artist Teacher of Piano
B.M. (Eastern New Mexico, Roswell 1986); M.M. (Johns Hopkins 1988) [1998]

FELIX WANG, Associate Professor of Cello
B.M. (Johns Hopkins 1991); M.M. (New England Conservatory 1992); D.M.A. (Michigan 1998) [1999]

GLEN WANNER, Adjunct Assistant Professor of Bass
B.M. (Southern California 1986); M.M. (New England Conservatory 1988) [1994]

ALISON WARFORD, Adjunct Artist Teacher of Chorus
B.A. (Oklahoma Baptist 1985); M.Div. (Southern Baptist Theological Seminary 1988); M.A. (Vanderbilt 2002) [2008]

ROGER WIESMEYER, Adjunct Associate Professor of Oboe
B.M. (Curtis Institute of Music 1987) [2002]

WILLIAM G. WIGGINS, Associate Professor of Percussion
B.S. (Peabody 1968); M.M. (Northwestern 1989) [1973]

MATT WILDER, Lecturer in Music
[2003]

ANNE H. WILLIAMS, Adjunct Senior Artist Teacher of Suzuki Cello
B.M. (Kentucky, Lexington 1965); M.A. (Indiana [Pennsylvania] 1972) [1986]

DAVID BINNS WILLIAMS, Senior Lecturer in Musicianship and Choral Studies
B.M., M.M. (Indiana, Bloomington 1993, 1995); M.M. (Cincinnati 2000) [1995]

JEREMY WILSON, Associate Professor of Trombone
B.M. (Tennessee 2005); M.M. (North Texas 2011) [2012]

School of Engineering

E

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 department 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 prepare undergraduate and graduate students for roles that contribute to society; to conduct research to advance the state of knowledge and technology and to disseminate these advances through archival publications, conference publications, and technology transfer; and to provide professional services to the community.

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 life-long 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 accommodate students 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, yet provide 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 curriculum, including a minor. In addition, a joint program with the Owen Graduate School of Management is available.

The bachelor of engineering serves those programs in engineering where professional registration through state boards is desirable or necessary. Typically, about 90 percent of the students are enrolled in programs that are accredited by the Engineering Accreditation Commission of ABET, Inc. To publicize professional registration and to serve the needs of engineers in the community who desire registration, the school sponsors a review course for the Fundamentals of Engineering Examination (FE).

The bachelor of science addresses the needs of those students seeking specialized programs not served by conventional engineering degree programs. The degree provides students with a general scientific and engineering background while allowing individual curricular desires to be addressed. For example, students who want to use a degree from the School of Engineering to enter the primary or secondary education fields may include the necessary courses in education from Peabody College in their engineering degree program.

Students at all levels have the opportunity to work with faculty in the generation of new knowledge. Those planning for graduate studies and research may 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 four buildings on campus. William W. Featheringill Hall provides a focal point for the School, housing 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. School administrative offices and several classrooms are located on the ground floor of the Science and Engineering Building in the Stevenson Center, which also houses the Biomedical Engineering Department on the eighth and ninth floors. Jacobs Hall, which flanks Featheringill Hall, contains laboratories, offices and classrooms serving both the Civil and Environmental Engineering Department and the Electrical Engineering and Computer Science Department. The Olin Hall of Engineering houses Chemical and Biomolecular Engineering, Mechanical Engineering, and Materials Science.

In all its engineering programs, Vanderbilt recognizes the valid place of experimental and research laboratories in the learning experience. Laboratories are planned to provide the strongest personal contact between students and faculty members consistent with enrollment.

Well-equipped undergraduate laboratories are maintained by the Departments of Chemistry and Physics 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, as does the Department of Earth and Environmental 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 B.E. degree are accredited by the Engineering Accreditation Commission of ABET, Inc. *(abet.org)*

Employment of Graduates

Of the recent Vanderbilt graduates with baccalaureate degrees in engineering, about 60 percent entered directly into professional practice. Forty percent continued with graduate education or chose military service careers. Others pursued diverse careers or other interests. Additional information regarding the employment of engineering graduates is available in the Center for Student Professional Development.

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. 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 films, outside speakers, plant trips, and other subjects of interest to the membership.

Student speakers from the Vanderbilt groups compete annually with speakers from other groups in their region in technical paper competitions.

Freshmen and sophomores are cordially invited to attend meetings—and juniors and seniors are urged to 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 Aeronautics and Astronautics (A.I.A.A.)
American Institute of Chemical Engineers (A.I.Ch.E)
American Society of Civil Engineers (A.S.C.E.)
American Society of Mechanical Engineers (A.S.M.E.)
American Society for Metals (A.S.M.)
Association for Computing Machinery (A.C.M.)
Institute of Electrical and Electronics Engineers (I.E.E.E.)
International Society for Hybrid Microelectronics (I.S.H.M.)
National Society of Black Engineers (N.S.B.E.)
Society of Automotive Engineers (S.A.E.)
Society of Hispanic Professional Engineers (S.H.P.E.)
Society of Engineering Science (S.E.S.)
Society of Women Engineers (S.W.E.)
Vanderbilt Biomedical Engineering Society

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, computer, electrical, 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 each discipline.

Bachelor of science degree programs offered in the interdisciplinary engineering disciplines often allow strong concentration in other areas of engineering or in the College of Arts and Science. The B.S. is awarded in the areas of computer science and engineering science.

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. degree in eight major fields. Degree programs offered by the School of Engineering are shown below.

Degree Programs

	B.E.	B.S.	M.Eng.	M.S.	Ph.D.
Biomedical Engineering	•		•	•	•
Chemical Engineering	•		•	•	•
Civil Engineering	•		•	•	•
Computer Engineering	•				
Computer Science		•		•	•
Electrical Engineering	•		•	•	•
Engineering Science		•			
Environmental Engineering			•	•	•
Materials Science and Engineering				•	•
Mechanical Engineering	•		•	•	•

Undergraduate Degrees

Bachelor of Engineering

The bachelor of engineering is offered in biomedical, chemical, civil, computer, electrical, and mechanical engineering. The B.E. degree requirements vary from 126 to 128 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. Each major requires 120 semester hours. These programs have more flexibility in elective choice than the B.E. degree programs.

The First Year

Many courses normally scheduled for the freshman year are common to both the B.E. and B.S. degree programs. While the curriculum for the freshman 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 freshman year to work out 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 chapter. Requirements for the B.E. and B.S. degrees for the various programs vary in the minimum amount of work and specific course requirements in the basic sciences and in specific subject requirements in mathematics.

Included in the freshman year is the course Engineering Science 140 (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 offering 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 honors mathematics sequence. For more information, see the course descriptions under Mathematics in the Arts and Science section of this catalog.

Students with inadequate backgrounds in mathematics may be required to take Math 133 (Pre-calculus Mathematics). Taking this course constitutes an additional requirement for graduation.

Math 127AB (Probability and Statistical Inference) and Math 140 (Survey of Calculus) cannot be credited toward a degree in the School of Engineering.

Pre-calculus physics courses 110 and 111 cannot be credited toward a degree in the School of Engineering.

Engineering Freshman Seminars

Optional engineering freshman seminars carry 1 hour of open elective credit. First-year students wishing to take a seminar will enroll in Engineering Science 101, Engineering Freshman Seminar.

Seminar offerings vary from year to year. During the summer preceding the first year, the Office of the Dean will mail a booklet describing seminar topics for the upcoming year.

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. The Liberal Arts Core will be selected from courses in the five distribution categories designated in the AXLE Curriculum Course Distribution of the College of Arts and Science:
a) Humanities and the Creative Arts, including English 100
b) International Cultures, including Arabic 210A, Chinese 200A/B, 201, French 101A, German 101, Greek 201, Hebrew 111A, Italian 101A, Japanese 200AB and 201, Latin 101, Portuguese 100A, Russian 101, Spanish 100 and 101
c) History and Culture of the United States
d) Social and Behavioral Sciences, including Engineering Management 244
e) Perspectives, including Computer Science 151

and the distribution categories of:

f) Music Composition and Performance
All MUSC, MUSE, MUSO, and MUSP courses in the Blair School of Music
g) Cognition and Development
All Peabody College courses in Psychology and Human Development numbered 1200-2000, 2230-2470, and 2560-2610, and in Human and Organizational Development numbered 1000, 1100, 1200-1800, and 2240-2280

Within the 18-hour requirement, the student must meet the following distribution requirements:
1. At least 3 credit hours in each of at least three different categories
2. At least 6 credit hours in one category

Open Electives

Courses excluded from the listings in the Liberal Arts Core may be taken as open electives.

Officer Education

Course offerings in military science and naval science are described in the chapter 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 carry AXLE designations and 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 currently offered in biomedical engineering, chemical engineering, civil engineering, electrical engineering, environmental engineering, and mechanical engineering.

Students must complete 30 hours of approved course work. For information on the Accelerated Graduate Program in Engineering degrees, see the chapter on Special Programs. A maximum of 6 hours of graduate-level work may be transferred from another institution. Residency requirements are flexible, 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 committee.

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. Application for admission should be sent to the associate dean of the School of Engineering. Further information about the program may be obtained by writing to the same office.

For information on integrated bachelor and master of engineering degrees, see the chapter on Special Programs.

Special Programs

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 chapter.

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. Honors students are usually exempt from some junior and senior class work in their major field in order to devote more time than other students to research, independent study, and graduate level courses. A comprehensive examination or written research report is required.

Successful candidates are awarded Honors in their area of interest. This designation appears on their diplomas.

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. The School of Engineering and Peabody College offer a teacher education program leading to secondary school licensure in physics (grades 9 through 12) and computer technology. Students major in engineering science in the School of Engineering and complete a second major in education 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.

Double 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.

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 engineering, and biomedical engineering/chemical engineering.

The double major is 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. Currently, minors are offered in engineering management, materials science and engineering, computer science, environmental engineering, energy and environmental systems, 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 Student Services Office 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.

PAVE

PAVE (Preparatory Academics for Vanderbilt Engineers) is a six-week summer engineering program designed to allow a faster adjustment to college, to show students what is expected academically and how to go about accomplishing it. The curriculum is multidisciplinary so as to strengthen students academically. The program involves in-depth problem solving, computer skills, laboratory experiments, and technical writing—all in an engineering/science environment. The participants have access to all campus academic and recreational facilities. Optional non-academic weekend activities are planned to provide a well-balanced summer. The program is open to students in the eleventh or twelfth grade or to high school postgraduates.

Three-Two Program

The School of Engineering recognizes a Three-Two program with certain liberal arts colleges. This plan allows students to attend a liberal arts college for three years of undergraduate study, usually majoring in mathematics or science, where they meet the residence requirements for a degree from that institution. They then transfer to the Vanderbilt University School of Engineering for two years of technical work in an engineering curriculum. Upon completion of the five years, students receive two bachelor's degrees, one from the liberal arts college and one from the School of Engineering. Students who lack the preparation to begin the junior curriculum in their major will need three years at Vanderbilt to complete the bachelor of engineering.

To complete all required technical courses at Vanderbilt in two years, students enrolled in the Three-Two program should complete, before coming to Vanderbilt, as many as possible of the mathematics and science courses listed in the specimen curriculum—in general, mathematics through differential equations, a year of physics, a year of another laboratory science (usually chemistry), and a semester of computer

programming. Students should plan their three years of liberal arts study so as to satisfy as nearly as possible the freshman and sophomore requirements of the particular engineering curriculum in which they will major at Vanderbilt.

Admission to the Three-Two program must be certified by the liberal arts college and is recognized by Vanderbilt University School of Engineering through special agreement between Vanderbilt and each of the liberal arts colleges participating in the Three-Two program.

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. or B.S. degree in engineering from Vanderbilt, generally within five years.

For the first three years, the student is enrolled at Fisk in a science 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 science 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 of Science/Master of Business Administration

In the five-year joint program in engineering and management, the student spends three undergraduate years in the engineering science major in the School of Engineering followed by two years at the Owen Graduate School of Management. First-year Owen School courses are used to meet the student's elective requirements for the B.S. in Engineering Science, with a concentration in Engineering Management. Successful students receive the B.S. from the School of Engineering after their first year at the Owen School and the MBA from the Owen School the following year.

Application to the Owen School normally is made during the student's junior year. Successful completion of the undergraduate curriculum in engineering science does not ensure admission to the Owen School.

Bachelor of Science in Computer Science/Master of Science in Finance

A program of study is available in which students can obtain a B.S. in computer science from the School of Engineering in four years and be well prepared for admission to the M.S. in Finance program in the Owen Graduate School of Management. Students spend their fifth year of study at the Owen School. Admission to the M.S. in Finance program is contingent upon performance. Students receive a strong background in computer programming and economics; minors in engineering management and mathematics are facilitated, providing further depth in preparation for the M.S. in Finance. The recommended curriculum is maintained on the computer science portion of the webpages of the Department of Electrical Engineering and Computer Science.

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 with at least a *B* average may be accepted into an integrated Bachelor of Engineering–Master of Engineering program. The last two years of a student's program is planned as a unit and may thereby include a broader choice of technical work.

Completion of all work toward both degrees is required before either degree is awarded. To protect the option of dropping back to the bachelor of engineering as a terminal degree, students who enter the integrated B.E.–M.Eng. program are advised to satisfy all requirements for the bachelor of engineering degree as promptly as feasible. Further information about the program is available from the chair of the student's major department.

Accelerated Graduate Program in Engineering

Students who enter Vanderbilt with a significant number of credits (20 to 30 hours), 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 an M.S. degree in about the same time required for the bachelor's degree. 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 3.5 grade point average. With the approval of the faculty in their major department, students apply through the associate dean for graduate studies for provisional admission and take one course approved for graduate credit each semester of the junior year. These courses will be credited toward the M.S. degree. Upon successful completion of these courses, the student is admitted to the Graduate School.

During the fourth year the student takes three courses (9 hours) for graduate credit each semester, and the remaining 6 to 10 undergraduate hours required for the bachelor's degree. The student receives the bachelor's degree at the end of the fourth year and spends the summer finishing a master's thesis to complete the M.S. degree. Further information can be obtained from the chair of the student's major department.

Honors

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 year's Vanderbilt graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous year's Vanderbilt graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous year's Vanderbilt 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

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 engineering. Eta Kappa Nu recognizes leadership and scholastic accomplishment twice annually, selecting members also from the professional body of practicing engineers.

ALPHA SIGMA MU. The Vanderbilt chapter of Alpha Sigma Mu was installed in 1977. Senior materials engineering students in the upper twenty percent of their graduating class are eligible upon recommendation of departmental faculty.

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 FRESHMEN. Freshmen 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 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.

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.

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.

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 is selected from faculty in any department. If a student later chooses a different department for his or her 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 his or her faculty adviser for counsel. Faculty advisers can also provide useful career guidance.

Accreditation and Professional Registration

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 examinations given by the Tennessee State Board of Architecture and Engineering Examiners as soon as they become eligible.

Bachelor of engineering degrees in biomedical engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET, Inc. *(abet.org)* Students in these programs may take the Fundamentals of Engineering examinations as seniors. In addition, proven professional experience is a requirement for registration. Other state boards may have different rules.

Graduate Record Examination

Most graduate schools, including Vanderbilt's, require or strongly encourage submission of Graduate Record Examination scores as a condition for admission. As a service to students the Psychological and Counseling Center administers the GRE periodically. Further information can be obtained from the Counseling Center or by writing the Educational Testing Service, Box 6000, Princeton, New Jersey 08540.

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.

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 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.

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*, and those that are completed with the grade Pass.

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

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.
2. No more than 6 hours of introductory level courses may be included in the total of Pass hours.
3. No more than two courses may be taken on a Pass/Fail basis in any one semester.

4. A minimum of 12 hours must be taken on a graded basis in any semester that a Pass/Fail course is taken. However, 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.
5. No required courses may be taken on a Pass/Fail basis.
6. The Pass/Fail option applies only to courses classified as open electives; elective courses offered in the College of Arts and Science, Blair School of Music, and Peabody College; and technical electives not considered part of the student's major field as defined by the curriculum committee of the major field.

Students may register for grading on a Pass/Fail basis until the close of the Change Period at the end of the first week of classes. Students may change from Pass/Fail to graded status until the deadline date for dropping 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 with a specified deadline by which they will be replaced with a permanent grade. A student who receives a temporary grade is ineligible for the Dean's List.

I: Incomplete

The Incomplete *(I)* is a temporary placeholder for a grade that will be submitted at a later date. The grade of *I* is given only under extenuating circumstances and only when a significant body of satisfactory work has been completed in a course. The *I* is not intended as a replacement for a failing grade, nor should it be assigned if a student simply misses the final examination. The grade of *M* is used for the latter purpose. The request for an *I* is generally initiated by the student but must be approved and assigned by the instructor. When assigning an Incomplete, the instructor specifies (a) a deadline by which the *I* must be resolved and replaced by a permanent grade and (b) a default course grade that counts the missing work as zero. The deadline may be no later than the end of the next regular semester. Extension beyond that time must be approved by the associate dean. If the work is not completed by the deadline the default grade will become the permanent grade for the course. The Incomplete is not calculated in the GPA, but a student who receives an Incomplete is ineligible for the Dean's List.

M: Missed Final Examination

The grade of *M* is given to a student who misses the final examination and is not known to have defaulted, provided the student could have passed the course had the final examination been successfully completed. The grade of *F* is given if the student could not pass the course even with the final examination. It is the student's responsibility to contact the Office of the Dean before the first class day of the next regular semester to request permission to take a makeup examination. The makeup examination must be taken on or before the tenth class day of the next regular semester. If the request has not been submitted by the proper time, or if the student fails to take the makeup examination within the prescribed time, the *M* grade will be replaced by a default grade submitted by the instructor when the *M* is assigned.

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 dropping 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 taking engineering courses, the senior re-examination policy applies if a student fails not more than one course in the senior year.

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. The repeat must be accomplished within one year of the first attempt for courses offered every year, or, for courses not offered within a year, the first time the course is offered. Failed courses may be repeated at any time. 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. When registering for a course previously completed, the student must indicate that the course is being repeated.

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.

Grade Average Requirements

To be eligible for graduation, a student must have passed all required courses, including the technical electives, and shall have earned a minimum average grade of *C* in (a) all courses taken, (b) courses taken within the School of Engineering, and (c) department courses of each major.

Any student who has been on probation for failure to meet the semester grade point average requirements in two successive semesters may be dropped for failure to meet the requirement in a third successive semester.

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. 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.

If a student elects or is required to take Mathematics 133 (Pre-calculus Mathematics), the minimum semester hours required for graduation shall be raised by the hours earned in that course.

Transfer Credit

It is the student's responsibility to provide all information needed for an assessment of the program for which transfer of credit is requested. 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 School of Engineering.

Transfer students must complete at least 60 hours of work at Vanderbilt. Two of the semesters must be the senior year.

Summer Work at Another Institution

Work that a student contemplates taking at a summer school other than Vanderbilt is treated as transfer work and must be approved in advance in writing by the student's adviser and the associate dean in the School of Engineering, at which time a course description must be submitted. A course a student has taken at Vanderbilt may not be repeated in another institution to obtain a higher grade.

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

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 both their registration appointment times and the registration system via YES (Your Enrollment Services) at *yes.vanderbilt.edu*.

See the explanation of late registration fees in the chapter on Financial Information.

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 but do not register for the course for credit. Forms are available from the School of Engineering registrar. 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 securing approval from their adviser. 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 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 first week of classes and extending to the end of the eighth week, a course may be dropped with approval of the student's adviser; a W (withdrawal) will be recorded.

To drop a course or change sections after the change period ends, the student must procure a Change of Course card from the Student Services Office. The student then obtains the signature of his or her adviser and of all instructors involved in the proposed change and returns the card to the Student Services Office.

Examinations

Examinations are usually given at the end of each semester in all undergraduate courses except for certain laboratory courses or seminars. The instructor may exempt students who have excelled in course work from the final examinations. Exams will be no longer than three hours in length and are given according to the schedule published in the *Schedule of Courses* (the School of Engineering does not offer an alternate examination schedule). All examinations are conducted under the honor system.

Residence Requirements

A minimum of four semesters including the last two semesters shall be spent in residence in the School of Engineering. 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. In unusual cases, an exception to this requirement may be made by the Administrative Committee upon the recommendation of the department concerned.

Class Standing

To qualify for sophomore standing, a student must earn a minimum of 24 hours and maintain a grade point average of at least 1.8 and have completed two regular semesters. 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. Freshmen who fail to qualify for sophomore standing after two semesters are placed on probation. Freshmen who fail to qualify for sophomore standing in three semesters may be dropped. The summer session counts as a semester for this purpose.

To qualify for junior standing, a student must earn a minimum of 54 hours and maintain a grade point average of at least 1.9 and have completed four regular semesters. Sophomores who fail to qualify for junior standing at the end of two semesters after qualifying for sophomore standing are placed on probation. A student who has been on probation for failure to qualify for junior standing and who does not qualify for junior standing in one extra semester may be dropped.

A student who has qualified for junior standing has two semesters to qualify for senior standing. Senior standing requires the completion of 86 hours and a minimum grade point average of 2.0 and have completed six regular semesters. Juniors who do not qualify for senior standing at the end of the second semester after qualifying for junior standing will be placed on probation. A student who has been on probation for failure to qualify for senior standing and who does not qualify for senior standing in one extra semester may be dropped.

Seniors who do not qualify for graduation at the end of the second semester after being promoted to the senior class will be placed on probation and given one more semester to complete the graduation requirements. A senior who has been on probation for failing to complete the graduation requirements and who fails to complete the requirements in one additional semester may be dropped.

Probation

A freshman who fails to complete 9 hours and earn a 1.7 grade point average during any semester is placed on probation. A sophomore, junior, or senior who fails to complete 12 hours and earn a 2.0 grade point average during any semester is placed on probation. The student is removed from probation after completing 12 hours and earning a 2.0 grade point average during any semester provided that sufficient credit hours are obtained for promotion to the next class.

Full-time sophomores are removed from probation after earning 12 hours and a 2.0 grade point average in a given semester, except that those who have not qualified for junior standing after two semesters as a sophomore must in the next semester fulfill the requirement for junior standing. Failure to do so will cause the student to be dropped.

A student who fails all courses in any semester will be dropped.

To remain in good standing, a student must pursue a program leading toward a degree in the School of Engineering. A student who is deemed by the Administrative Committee not to be making satisfactory progress toward a degree in engineering will be dropped.

A student authorized by the Administrative Committee to carry fewer than 12 hours because of illness or outside employment, or for some other valid reason, may be placed on probation if the student's work is deemed unsatisfactory by the Administrative Committee and will be removed from probation when the committee deems the work satisfactory.

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. If class attendance does not improve thereafter, the student may be dropped from the class with the grade *W,* if passing at the time, or the grade *F,* if failing at the time. 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 3.0 grade point average while taking a minimum of 12 hours. Failure to maintain a 3.0 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 Student Services Office of the School of Engineering.

A grade reported and recorded in the University Registrar's Office 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 for Graduate Credit

A qualified Vanderbilt senior may enroll in courses approved for graduate credit by the graduate faculty and receive credit which, upon admission to the Vanderbilt University Graduate School, may be applicable toward a graduate degree. The principles governing this option are as follows:

1. Work taken under this option is limited to those 200- and 300-level courses approved for graduate credit and listed as such in the catalog of the Graduate School, excluding thesis and dissertation research courses and similar individual research and reading courses.
2. Such work must be in excess of that required for the bachelor's degree.
3. The student must, at the time of registration, have a *B* average in the preceding two semesters.
4. The total course load, graduate and undergraduate courses, must not exceed 18 hours in any one semester.
5. Undergraduate students who want to count for graduate 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 in the Dean's Office.
6. 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.
7. An undergraduate student exercising this option will be treated as a graduate student with regard to class requirements and grading standards.

All students who want to take 300-level courses, whether under this option or not, must obtain the written approval of their academic adviser, the instructor of the course and the associate dean for graduate studies in the Engineering School.

Interested students should consult their faculty advisers and with the Graduate School office before attempting to register for graduate courses 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 Student Services Office. 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 School of Engineering Student Services Office or the Office of the University Registrar. The university will consider notices or other information delivered if mailed to the address on file in YES.

Special Students

The normal program of study is 12 to 18 hours per semester. Students authorized by the Administrative Committee to register for fewer than 12 hours are classified as special students.

Withdrawal from the University

A student proposing to withdraw from the university must notify the Student Services Office of the School of Engineering so that proper clearance may be accomplished and that incomplete work is not charged as a failure against the student's record.

Courses of Study

Hours are semester hours. The bracketed [3] indicates 3 semester hours of credit for one semester, and [3–3] for a two-semester course.

100-199 courses are primarily for freshmen and sophomores.
200-299 courses are normally taken by juniors and seniors but are open also to qualified sophomores and freshmen. Courses numbered 200-299 are eligible for graduate credit if they are listed in the *Graduate School Catalog*.
300-399 courses are graduate courses and are not open to undergraduates without the consent of the instructor, the adviser, and the associate dean for research and graduate studies.
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
EECE	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 Freshman Year

The freshman year curriculum for all of the engineering disciplines is:

Specimen Curriculum

FALL SEMESTER		Semester hours
Chemistry 102A	General Chemistry	3
Chemistry 104A	General Chemistry Laboratory	1
Mathematics 155A	Accelerated Single-Variable Calculus I	4
Engineering Science 140 A-C	Introduction to Engineering	3
	Elective	3
	Total	14

SPRING SEMESTER		Semester hours
Chemistry 102B	General Chemistry	3
and	and	
Chemistry 104B‡	General Chemistry Laboratory	1
or	or	
Materials Science 150‡	Materials Science I	4
Mathematics 155B	Accelerated Single-Variable Calculus II	4
Physics 116A	General Physics I	3
Physics 118A	General Physics Laboratory I	1
Engineering Science 101	Engineering Freshman Seminar (optional)	1
Computer Science 101	Programming and Problem Solving	3
or 103		
	Total	15-16

‡ Chemical engineering and biomedical engineering majors must take Chemistry 102B and 104B.

E

Biomedical Engineering

CHAIR Todd D. Giorgio
DIRECTOR OF UNDERGRADUATE STUDIES Adam W. Anderson
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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 focus and depth in areas such as biomaterials and tissue engineering, biomedical imaging, biophotonics, bionanotechnology, modeling, therapy guidance systems, and biomedical instrumentation. Double majors with electrical engineering and with chemical engineering are available.

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, technology-guided therapy including surgical guidance systems, biomaterials and tissue engineering, and nanobiotechnology for cellular engineering 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 300-level (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 240A and 240B 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 semester hours, distributed as follows:

1. Mathematics (15 hours): 155A-B, 175, 196.
2. Basic Science (20 hours): Chemistry 102A-B, 104A-B, Physics 116A-B and 118A-B, Biological Sciences 110/111A.
3. Introductory engineering and computing (6 hours): ES 140A-C and either CS 103 (preferred) or CS 101.
4. Electrical engineering (7 hours): EECE 112, 213, 213L.
5. Biomedical engineering (31 hours): BME 101, 103, 210, 251, 252, 255, 260, 271, 272, 273, 297.
6. Biomedical engineering electives (12 hours) comprising:

   i) BME elective courses numbered 203 and higher.

   ii) Up to 3 hours total of BME 240 and 241. An additional 3 hours of BME 240/241 may be used as Technical electives.

   iii) Up to 3 hours selected from ChBE 282, 283, 287; EECE 214, 253, 254; ENVE 269, 272; ME 220. This option does not apply to BME/EE double majors.

   iv) BME graduate courses, with the exception of BME 391-394, provided the student has a 3.5 GPA and appropriate permissions.
7. Technical electives (12 hours) comprising:

   i) BME electives taken above the 12 credit hour minimum. Up to 3 hours of BME 240/241 or other independent

study courses in the School of Engineering may be taken as Technical electives.

ii) Courses in the School of Engineering except ChBE 230, CE 180, CS 151, ENGM 244, ME 171, and listings in Engineering Science.

iii) Courses numbered 200 or higher in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution category except MATH 208, 216, 252, and PHYS 228 (if credit is given for BME 258).

iv) Biological Sciences 110B, 111B.

v) Nursing 150, 225, 231A-B.

8. Liberal Arts Core (18 hours) to be selected to fulfill the Liberal Arts Core requirements listed under 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
BioSci 110A/111A	Introduction to Biological Sciences	4	–
BME 101	Introductory Biomechanics	3	–
BME 103	Biomedical Materials	–	3
Math 175	Multivariable Calculus	3	–
Math 196	Differential Equations with Linear Algebra	–	4
Phys 116B, 118B	General Physics with Laboratory II	4	–
EECE 112	Circuits I	–	3
	Biomedical Engineering or Technical Elective	–	4
	Liberal Arts Core	3	3
		17	17
JUNIOR YEAR			
BME 210	Physiological Transport Phenomena	3	–
BME 251–252	Systems Physiology	3	3
BME 260	Analysis of Biomedical Data	–	3
BME 271	Biomedical Instrumentation*	–	4
EECE 213, 213L	Circuits II	4	–
	Biomedical Engineering or Technical Elective	3	4
	Liberal Arts Core	–	3
	Open Elective	3	–
		16	17
SENIOR YEAR			
BME 255W	Biomedical Engineering Laboratory	3	–
BME 272–273	Design of Biomedical Engineering Systems I, II	2	3
BME 297	Senior Engineering Design Seminar	1	–
	Biomedical Engineering or Technical Elective	7	6
	Liberal Arts Core	3	3
	Open Elective	–	3
		16	15

* BME 271 may also be taken in the fall of the senior year.

Course descriptions begin on page 329.

Chemical and Biomolecular Engineering

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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 and biomolecular engineering prepares students to contribute to the solution of these and similar problems. Graduates find meaningful careers in industry, in government laboratories, and as private 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 bachelor of engineering in chemical engineering and graduate study leading to the M.Eng., M.S., and Ph.D.

Undergraduate chemical and biomolecular 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 for the various focus areas are available on the department website. Double majors may be arranged in consultation with a faculty adviser.

The chemical and biomolecular engineering department recommends that students consider taking 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: EECE 112, CE 180, and ME 190.

Undergraduate Honors Program. The professional 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 meeting other requirements 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. At least 6 hours of courses 250 and above from the graduate catalog must be taken, plus 6 hours of ChBE 246 and 247. A formal written research report is submitted each semester ChBE 246 or 247 is taken with a final report and presentation given in the spring semester of the senior year to the ChBE Faculty and students. For honors students, ChBE 246 is substituted for ChBE 229W. The diploma designation is Honors in Chemical Engineering.

Facilities. The Chemical and Biomolecular Engineering Department is located in Olin Hall of Engineering. Departmental 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; adsorption and surface chemistry; biochemical engineering and biotechnology; chemical reaction engineering; environment, including air pollution; materials; process modeling and control.

Curriculum Requirements

The B.E. in chemical engineering requires a minimum of 126 hours course credit. The courses and credits are distributed as follows:

1. Mathematics (14 hours). Required courses: Math 155A-B, 175, 198.
2. Basic Science (24 hours). Required courses: Chemistry 102A-B, 104A-B, 219A-B, 220A-B; Physics 116A-B, 118A-B.
3. Engineering Science (3 hours). Required courses: ES 140A-C.
4. Computer Science (3 hours). Required course: CS 103.
5. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
6. Chemical and Biomolecular Engineering (33 hours). Required courses: ChBE 161, 162, 180, 223, 225, 228W, 230, 231, 233W, 234W, 297.
7. Chemical Engineering Focus Area or Double Major (31-36 hours). Students must complete one of the following:

    a) Chemical Engineering (includes Minor in Chemistry) (31 hours)

        i) Required courses (15 hours): BSCI 110A or ChBE 220; Chem 230; ChBE 229W, 242, 283.

ii) Chemical and Biomolecular Engineering elective: 3 hours selected from ChBE course offerings.

iii) Technical electives (6 hours). From this list of approved technical electives: BME (except 201, 241A-B), ChBE, CE, CS 201 or above, EECE, ENVE, ME, MSE, NANO, SC, ENGM 216, 254, 273, Astronomy (except 102, 115F, 203), Biological Sciences 110B or above (except 115F), Chemistry 202 or above, Earth and Environmental Sciences (except 108, 115F, 205), Mathematics 194 or above (except 196, 252), Physics 200 or above (except 238), Neuroscience 201-274, Psychology 209, 236.

iv) Open electives (7 hours).

b) Biotechnology (31 hours)

i) Required courses (15 hours): BSCI 110A or ChBE 220; BSCI 201 or 220; ChBE 229W, 282, 283.

ii) Applied Mathematics elective: 3 hours selected from ChBE 242, 285; Math 216, 262.

iii) Technical electives: 6 hours selected from ChBE 242, 285, 286, 287; BME 251, 252, 279, 280, 281.

iv) Open electives (7 hours).

v) ChBE 242 and ChBE 285 can each be used to satisfy only one of ii) or iii).

c) Materials (includes Minor in Materials Science and Engineering) (31 hours)

i) Required courses (10 hours): ChBE 229W; MSE 150, 250.

ii) Applied Mathematics elective (3 hours): ChBE 242 or 285.

iii) Applied Materials electives: 6 hours selected from BME 101, 103, 274, 281; ChBE 284, 286, 287, 288; ME 251.

iv) Science electives: 6 hours selected from Chem 203, 230, 235; Phys 225W, 229A, 254. One of BSCI 110A, ChBE 220, or Chem 240 may also be used to fulfill 3 hours of this requirement.

v) Chemical and Biomolecular Engineering elective (3 hours). Selected from ChBE course offerings. This requirement may be replaced by 3 hours of open electives if a ChBE course is taken to fulfill the Applied Materials elective.

vi) Open electives (3 hours).

d) Double Major with Chemistry (35 hours)

i) Required courses (23 hours): Chem 203, 210, 212A, 230, 236, 295A-B; BSCI 110A or ChBE 220; BSCI 220.

ii) Applied Mathematics elective (3 hours): ChBE 242 or 285.

iii) Applied Chemistry electives: 6 hours selected from BME 281; ChBE 282, 283, 284, 286, 287, 288.

iv) Engineering Elective: 3 hours to be selected from BME (except 201, 241A-B, 249), ChBE, CE, CS 201 or above, EECE, ENVE, ME, MSE, ENGM 216, 254, 273.

e) Double Major with Biomedical Engineering (requires 131 total hours)

i) Required courses (40 hours): BSCI 110A, 111A; BME 101, 103, 251, 252, 255W, 271, 272, 273, 297; EECE 112, 213, 213L; Math 196.

ii) ChBE elective: ChBE 282 or 283.

iii) BME elective: 3 hours to be selected from BME courses at the 200 level and higher with the exception of 201, 210, 241A-B, 260, 301-305, and 391-394.

iv) Math 196 replaces Math 198 in the Mathematics requirement.

v) BME 101, 272, 273, and 297 replace ChBE 180, 234W, and 297 in the ChBE Core requirement.

Specimen Curriculum for Chemical Engineering, Focus Area a)

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
Chem 219A-B	Organic Chemistry Laboratory	1	1
Chem 220A-B	Organic Chemistry	3	3
Math 175	Multivariable Calculus	3	–
Math 198	Methods of Ordinary Differential Equations	–	3
Physics 116B	General Physics II	3	–
Physics 118B	General Physics Laboratory II	1	–
ChBE 161	Chemical Process Principles	3	–
ChBE 162	Chemical Engineering Thermodynamics	–	3
ChBE 180	Modeling and Simulation in Chemical Engineering	–	3
	Liberal Arts Core	3	3
		17	16
JUNIOR YEAR			
Chem 230	Physical Chemistry I	3	–
ChBE 220	Molecular and Cell Biology for Engineers	3	–
ChBE 223	Phase Equilibria and Stage-Based Separations	3	–
ChBE 225	Chemical Reaction Engineering	–	3
ChBE 228W	Chemical Engineering Laboratory I	–	4
ChBE 230	Fluid Mechanics and Heat Transfer	3	–
ChBE 231	Mass Transfer and Rate-Based Separations	–	3
CHBE 242	Chemical Process Control	–	3
	Liberal Arts Core	3	3
		15	16

SENIOR YEAR		Semester hours FALL	SPRING
ChBE 229W	Chemical Engineering Laboratory II	3	–
ChBE 233W	Chemical Engineering Process and Product Design	4	–
ChBE 234W	Chemical Product Design Projects	–	3
ChBE 283	Bioprocess Engineering	3	–
ChBE 297	Senior Engineering Design Seminar	1	–
	Chemical and Biomolecular Engineering Elective	–	3
	Liberal Arts Core	–	3
	Technical Elective	3	3
	Open Elective	3	4
		17	16

Specimen curricula for focus areas and double majors b) to e) in chemical engineering can be found on the department's website.

Course descriptions begin on page 332.

Civil Engineering

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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 enhancing 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 on contaminant behavior in the environment, waste management, nuclear environmental engineering, and environmental remediation. 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 5 years.

Construction Management Five Year Program. Students seeking advanced study in construction management may be particularly 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 newly renovated 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 126 hours, distributed as follows:

1. Mathematics (14 hours). Required courses: 155A-155B, 175, 198. (Qualified students may substitute an honors mathematics sequence.)
2. Basic science (12 hours). Required courses: Chemistry 102A and 104A; and Physics 116A-B and 118A-B.
3. Basic science elective (4 hours). To be selected from the following list of scientific subjects: (a) Chemistry 102B/104B and all chemistry courses at or above 200 (recommended for students interested in environmental engineering); (b) Biological Sciences 110A, 110B, and all courses 200 and above; (c) Earth and Environmental Sciences 101 and 111, 103 and 113, 225, 226, 230, 240; (d) Physics—all courses above 130 (astronomy not accepted); and (e) Materials Science and Engineering—all courses except 209B,C and 210A,B.
4. Computing (3 hours). Required course: CS 103.
5. Engineering fundamentals (27 hours). Required courses: ES 140A-C; CE 160, 161, 180, 182, 203, 204; ENGM 216; ME 190; MSE 232; ME 220 or ChBE 162 (students interested in environmental engineering are encouraged to enroll in ChBE 162).
6. Probability and statistics elective (3 hours). Select from CE 247, Math 216, or Math 218.
7. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed under Degree Programs in Engineering.
8. Open electives (6 hours).
9. Technical electives (6 hours). To be selected from the following list of technical and scientific subjects: (a) all courses in BME, ChBE, CE, ENVE, EE, ME, and ENGM 242, 273; (b) all courses acceptable as Science electives as indicated above; and (c) Math 194 and all Math courses 210 and above, except 216, 218, and 252.
10. Civil Engineering Core (27 hours). Required courses: CE 205W, 225, 226, 227, 232, 235, 240, 286, and CE 252. In addition, all students must complete CE 248-249, a two-part, major meaningful and comprehensive project design course.
11. Civil Engineering Professional Electives (6 hours). To be selected from following list of course offerings: CE 251, CE 255, CE 256, CE 257, CE 293, CE 294, CE 298, ENVE 262, ENVE 272, ENVE 276, ENVE 277, ChBE 280.

Optional Areas of Specialization

Students may desire to use open electives, technical electives, and civil engineering professional electives to gain additional depth and expertise in particular areas of emphasis in civil engineering, including environmental and water resources engineering, structural engineering, and transportation engineering. It is recommended that students discuss specific course selections with their academic adviser. Students desiring advanced topic coverage should also consider 300-level courses, with approval of their adviser.

Environmental and Water Resources Engineering	Structural Engineering	Transportation Engineering
ENVE 252	CE 251	CE 255
ENVE 254	CE 293	CE 256
ENVE 260	CE 294	CE 257
ENVE 262	CE 295	CE 293
ENVE 270	ME 259	CE 294
ENVE 271	ME 275	ENVE 262
ENVE 272		
ENVE 273		
ENVE 274		
ENVE 276		
ENVE 277		
ChBE 280		

Cross-Cutting Courses. The following selected courses are multi-disciplinary in nature, cross-cutting multiple areas of specialization: CE 247, CE 259, CE 290, ENVE 264, ENVE 296, and MATH 194.

Specimen Curriculum for Civil Engineering

SOPHOMORE YEAR		Semester hours FALL	SPRING
Math 175	Multivariable Calculus	3	–
Physics 116B	General Physics II	3	–
Physics 118B	General Physics Laboratory II	1	–
CE 160	Civil and Environmental Eng. Information Systems I	2	–
CE 180	Statics	3	–
CE 225	Transportation Systems Engineering	3	–
Math 198	Methods of Ordinary Differential Equations	–	3
CE 161	Civil and Environmental Eng. Information Systems II	–	2
ME 190	Dynamics	–	3
CE 182	Mechanics of Materials	–	3
	Thermodynamics (ME 220 or ChBE 162)	–	3
	Liberal Arts Core	–	3
		15	17
JUNIOR YEAR			
CE 203	Fluid Mechanics	3	–
CE 204	Fluid Mechanics Laboratory	1	–
CE 226	Environmental Engineering	3	–
CE 232	Introduction to Structural Analysis	3	–
MSE 232	Strength and Structure of Engineering Materials	1	–
CE 240	Geotechnical Engineering	3	–
	Liberal Arts Core	3	3
CE 205W	Civil and Environmental Engineering Laboratory	–	2
ENGM 216	Engineering Economy	–	3
CE 227	Water Resources Engineering	–	3
CE 235	Introduction to Structural Design	–	3
	Probability and Statistics Elective	–	3
		17	17

SENIOR YEAR		Semester hours FALL	SPRING
CE 248	Civil Engineering Design I	1	–
CE 286	Construction Project Management	3	–
	CE Professional Elective	3	3
	Technical Elective	3	3
	Open Elective	3	3
	Liberal Arts Core	3	3
CE 249	Civil Engineering Design II	–	2
CE 252	Civil and Environmental Engineering Seminar	–	1
		16	15

Pre-Architecture Program

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. Professor Michael Aurbach in the Department of Art serves as the pre-architecture adviser to Vanderbilt students. In addition, the Vanderbilt student club, BLUEprint, seeks to educate and prepare students interested in this field.

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 226 – Environmental Engineering
ENVE 271 – Environmental Chemistry

Elective Courses (9 hours)
CE 227 – Water Resources Engineering
CE 259 – Geographic Information Systems
ChBE 280 – Atmospheric Pollution
ENVE 252 – Physical Hydrology
ENVE 254 – Energy and Water Resources
ENVE 260 – Solid and Hazardous Waste Management
ENVE 262 – Hydrology
ENVE 264 – Environmental Assessments
ENVE 270 – Environmental Thermodynamics, Kinetics, and Mass Transfer
ENVE 272 – Biological Unit Processes
ENVE 273 – Environmental Characterization and Analysis
ENVE 274 – Surface Water Quality Modeling
ENVE 276 – Groundwater Hydrology
ENVE 277 – Physical/Chemical Unit Processes
ENVE 285 – Introduction to Nuclear Environmental Engineering
ENVE 296 – Safety, Security, and Environmental Risk Management

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 distributed among three 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 254 – Energy and Water Resources
ENVE 264 – Environmental Assessments

Elective Courses (9 hours)

Area I: Energy Systems
EECE 267 – Power System Analysis
ME 210 – Special Topics: Nuclear Power
ME 260 – Energy Conversion I
ME 264 – Internal Combustion Engines
ME 265 – Direct Energy Conversion

Area II: Environmental Engineering
CE 226 – Environmental Engineering
CE 227 – Water Resources Engineering
ChBE 280 – Atmospheric Pollution
ENVE 262 – Hydrology
ENVE 270 – Environmental Thermodynamics, Kinetics, and Mass Transfer
ENVE 273 – Environmental Characterization and Analysis
ENVE 285 – Introduction to Nuclear Environmental Engineering
ENVE 296 – Operational Risk Management
ME 262 – Environmental Control

Area III: Environmental Survey
ANTH 207 – Energy, Environment, and Culture
CE 259 – Geographic Information Systems
CE 298 –Building Systems and LEED
EES 108 – Earth and the Atmosphere
EES 201 – Global Change and Global Issues
PHIL 273 – Environmental Philosophy
SOC 270 – Human Ecology and Society

Minor in Engineering Management

A minor in engineering management is available to all students in civil engineering. This program provides students with a working knowledge of the fundamentals of business and engineering management. It requires a minimum 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: four core courses and the remaining course chosen from a list of electives. A detailed description of the engineering management minor is available in this catalog.

Study Abroad

Civil engineering students can participate in the Vanderbilt Study Abroad programs (see description of the Study Abroad programs in this catalog). Civil engineering students often participate during the fall semester of their junior year, but students may study abroad in either the sophomore or the junior year.

Civil Engineering

Course descriptions begin on page 333.

Environmental Engineering

Course descriptions begin on page 336.

Computer Engineering

DIRECTOR OF UNDERGRADUATE STUDIES William H. Robinson
PROFESSORS EMERITI A. B. Bonds, Arthur J. Brodersen, James A. Cadzow, J. Michael Fitzpatrick, Stephen R. Schach
PROFESSORS Bharat L. Bhuva, Gautam Biswas, Benoit M. Dawant, Lawrence W. Dowdy, Weng Poo Kang, Gábor Karsai, Kazuhiko Kawamura, Lloyd W. Massengill, Nilanjan Sarkar, Douglas C. Schmidt, Ronald D. Schrimpf, Janos Sztipanovits
ASSOCIATE PROFESSORS Julie A. Adams, Robert E. Bodenheimer, Jr., Douglas H. Fisher, Aniruddha S. Gokhale, Xenofon D. Koutsoukos, Akos Ledeczi, William H. Robinson, D. Mitchell Wilkes, Yuan Xue
ASSISTANT PROFESSORS Yevgeniy Vorobeychik, Jules White

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. choose 6 hours of EE/CmpE program elective credit from among the following list:
   a. research-based independent study credit, or
   b. design domain expertise (DE) courses beyond the one course required by the program, or
   c. 300-level courses.
3. complete 3 hours of research-based independent study credit (with final written report) in addition to all other requirements.

The diploma designation is Honors in Computer Engineering.

Curriculum Requirements

The B.E. in computer engineering requires a minimum of 127 hours distributed as follows:

1. Mathematics (18 hours). Required courses: 155A, 155B, 175, 196, 216 (qualified students may substitute an honors mathematics sequence).
2. Basic Science (16 hours). Required courses: Chemistry 102A, Chemistry 104A, Physics 116A-B and 118A-B, MSE 150 (or Chemistry 102B, Chemistry 104B).
3. Engineering Fundamentals (6 hours). Required courses: ES 140A-C, ES 210W.
4. Culminating Design Experience (7 hours). Required courses: EECE 295, EECE 296, EECE 297.
5. Computer Engineering Core (at least 26 hours). Required courses: EECE 112, 116/116L, 218/218L and either 213/213L or 214; CS 101, 201, 231, and 251.
6. Computer Engineering Electives (18 hours). Defined by a structure that includes the three Computer Engineering Areas of Concentration listed below. Students must complete at least two courses in each of two areas of concentration. Embedded Systems (Area 1) must include EECE 276, Computing Systems and Networks (Area 2) must include CS 281 and Intelligent Systems and Robotics (Area 3) must include EECE 257. Students must complete at least one approved design domain expertise (DE) course as designated below. Other electives from any of the Areas of Concentration or approved independent study (CS 240A-240B; EECE 203-204) to total 18 hours.

Computer Engineering Areas of Concentration

Embedded Systems	Computing Systems and Networks	Intelligent Systems and Robotics
EECE 276 (DE)	CS 281	EECE 257
EECE 256 (DE)	CS 265	EECE 253 (DE)
EECE 257	CS 274 (DE)	EECE 254
EECE 258 (DE)	CS 278 (DE)	EECE 258 (DE)
EECE 275	CS 279 (DE)	ME 271
EECE 277 (DE)	CS 282 (DE)	CS 260
EECE 285 (DE)	CS 283 (DE)	CS 269 (DE)
CS 274 (DE)	CS 284 (DE)	
	CS 285	
	EECE 261	

(DE) designates a Design Domain Expertise course

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 (15 hours).
   a. (6-15 hours). At least 6 hours must be taken from this list of approved engineering technical electives.
      BME (except 201, 240A-240B, 241A-241B)
      ChBE
      CE
      CS (except 103, 151)
      EECE (hours above basic requirement in sections 5 and 6 above)
      ENGM 273
      ME
      MSE (except 150)
   b. (0-9 hours). Up to 9 hours may be taken from this list of optional technical electives.
      ENGM 216, 221, 244
      MSE 150 (if Chemistry 102B is used as a basic science)
      Astronomy (except 102, 115F, 203)
      Biological Sciences (except 115F)
      Chemistry (except 101A-B, 102A-B, 115F)
      Earth and Environmental Sciences (except 100, 102, 115F)
      Mathematics above 194 (except 198, 252)
      Physics (except courses numbered 122 or below)
      Neuroscience 201, 255, 269
      Psychology 208, 209, 234, 236
9. Open Elective (3 hours).

Specimen Curriculum for Computer Engineering

		Semester hours FALL	SPRING
FRESHMAN YEAR			
EECE 116/116L†	Digital Logic	–	4
CS101	Programming and Problem Solving	–	3
	Other freshman courses (see the engineering freshman-year specimen curriculum)	14	8
		14	15
SOPHOMORE YEAR			
Math 175	Multivariable Calculus	3	–
Math 196	Differential Equations with Linear Algebra	–	4
Physics 116B	General Physics II	3	–
Physics 118B	General Physics Laboratory II	1	–
MSE 150 †	Materials Science I	–	4
EECE 112	Circuits I	3	–
EECE 218/218L	Microcontrollers	–	4
CS 201	Program Design and Data Structures	3	–
CS 231	Computer Organization	–	3
CS 251	Intermediate Software Design	–	3
	Liberal Arts Core	3	–
		16	18
JUNIOR YEAR			
Math 216	Probability and Statistics for Engineering	–	3
ES 210W	Technical Communications	3	–
EECE 276/276L	Embedded Systems		–
or CS 281	Principles of Operating Systems I	4/3	–
EECE 213/213L	Circuits II		
or EECE 214	Signals and Systems	4/3	–
	CmpE Program Elective ‡	3	6
	Liberal Arts Core	3	3
	Technical Electives	–	6
		15-17	18
SENIOR YEAR			
EECE 295	Project Management for EECE	3	–
EECE 296	EECE Design	–	3
EECE 297	Senior Engineering Design Seminar	1	–
	CmpE Program Electives ‡	3	3
	Liberal Arts Core	3	3
	Technical Electives	6	3
	Open Electives	–	3
		16	15

† Computer engineering majors are encouraged to take EECE 116 in the spring of their freshman year in lieu of MSE 150. MSE 150 may be taken in the sophomore year.

‡ As described in "Computer Engineering Degree Requirements" subsection 6. At least one design domain expertise (DE) course required prior to EECE 296.

Computer Science

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 background 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, master of engineering, and doctor of philosophy are also awarded in computer science. Many students choose to double major in mathematics.

Undergraduate Honors Program. The Honors Program 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 240A, CS 240B) and 300-level courses 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, with distribution as follows:

1. Mathematics (20–22 hours). Required components:

   (a) A calculus sequence (11–16 hours).
   Selected from the following:
   –150A, 150B, 170, 175
   –155A, 155B, 175
   –155A, 155B, 205A, 205B

   (b) Linear algebra (3–4 hours): 194, 204, or 205B.

   (c) Statistics/Probability (3 hours): 216, 218, or 247.

   Elective course (3 hours):
   Selected from: 198, 200, or courses numbered 208 or higher.

2. Science (12 hours).
   Selected from the following list. Each is a four credit hour lab course. Students are required to take at least one two-course sequence.
   –Biological Sciences (110A–110B and 111A–111B)
   –Biological Sciences (100, 218, 219)
   –Chemistry (102A and 104A, 102B and 104B)
   –Earth and Environmental Sciences (101 and 111)
   –Materials Science and Engineering 150
   –Physics (116A-B and 118A-B)
   Recommended: Chemistry 102A and 104A, Physics 116A-B.

3. Introduction to Engineering (3 hours). ES 140A-C.

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 (28 hours).
   –Software/Problem Solving: CS 101, CS 201, CS 251, and CS 270.
   –Hardware/Systems: EECE 116, 116L, CS 231, and CS 281.
   –Foundations: CS 212 and CS 250.

6. Computer Science Depth (12 hours). To be selected from computer science courses numbered CS 240 or higher, or from the following EECE courses: 253, 254, or 276; or from at most two of the following math courses: 226, 253, 286, 288. At least one course (i.e., 3 hours) must be a designated project course selected from CS 258, 265, 269, 274, 276, 279, 282, 283, 284, or 285.

7. Technical Electives (6 hours) To be selected from computer science courses numbered CS 240 or higher; from courses within the School of Engineering outside of computer science numbered 200 or higher (students are encouraged to note the two-course sequence EECE 295-296); or from courses numbered 200 or higher in the College of Arts and Science listed in the mathematics and natural sciences (MNS) AXLE distribution requirements.

8. Open Electives (19–21 hours).

9. Computers and Ethics. Three hours from the Liberal Arts Core (#4) or Open Electives (#8) must be an approved ethics course (CS 151 or Philosophy 105).

10. Writing Component. At least one "W"-designated course in the English Language must be included from the Liberal Arts Core (#4) or Open Electives (#8).

Specimen Curriculum for Computer Science

FRESHMAN YEAR		Semester hours FALL	SPRING
Chem 102A	General Chemistry	3	–
Chem 104A	General Chemistry Laboratory	1	–
Physics 116A	General Physics I	–	3
Physics 118A	General Physics Laboratory I	–	1
Math 155A	Accelerated Single-Variable Calculus I	4	–
Math 155B	Accelerated Single-Variable Calculus II	–	4
ES 140A-C	Introduction to Engineering	3	–
CS 101	Programming and Problem Solving	–	3
	Open Electives	3	–
	Liberal Arts Core	–	3
		14	14
SOPHOMORE YEAR			
Physics 116B	General Physics II	3	–
Physics 118B	General Physics Laboratory II	1	–
Math 175	Multivariable Calculus	–	3
EECE 116/116L	Digital Logic	4	–
CS 201	Program Design and Data Structures	3	–
CS 212	Discrete Structures	–	3
CS 231	Computer Organization	–	3
CS 251	Intermediate Software Design	–	3
	Liberal Arts Core	–	3
	Open Elective	3	–
		14	15
JUNIOR YEAR			
Math 194	Methods of Linear Algebra	–	3
Math 218	Introduction to Math Statistics	3	–
ES 210W	Technical Communications	3	–
CS 250	Algorithms	–	3
CS 270	Programming Languages	3	–
CS 281	Operating Systems Principles	3	–
	Computer Science Project	–	3
	Liberal Arts Core	3	3
	Computer Science Depth	3	3
		18	15
SENIOR YEAR			
	Math Elective (e.g., Math 250)	3	–
	Computer Science Depth	6	6
	Liberal Arts Core	3	3
	Open Electives	3	6
		15	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 distributed according to items 5 and 6 of the curriculum requirements listed above.

Courses taken toward the second major may not be taken pass/fail.

Computer Science Minor

The minor in computer science requires 19 hours of computer science courses as follows:

1. Programming: CS 101	3
2. Discrete Structures: CS 212	3
3. Digital Logic Fundamentals: EECE 116/116L	4
4. Intermediate Computer Concepts: CS 201	3
5. One of CS 231 (Computer Organization), CS 250 (Algorithms), or CS 251 (Int. Software Design)	3
6. One additional CS course numbered 240 or above	3
Total hours:	19

Courses taken toward the minor may not be taken pass/fail.

Course descriptions begin on page 337.

Electrical Engineering

CHAIR Daniel M. Fleetwood
ASSOCIATE CHAIR A. B. Bonds
DIRECTOR OF UNDERGRADUATE STUDIES A. B. Bonds
DIRECTOR OF GRADUATE STUDIES Sharon M. Weiss
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PROFESSORS Bharat L. Bhuva, Benoit M. Dawant, Philippe M. Fauchet, Daniel M. Fleetwood, Kenneth F. Galloway, Michael Goldfarb, Dennis G. Hall, Weng Poo Kang, Gábor Karsai, Kazuhiko Kawamura, Lloyd W. Massengill, Sokrates T. Pantelides, Robert A. Reed, Ronald D. Schrimpf, Janos Sztipanovits, Robert A. Weller
ASSOCIATE PROFESSORS Akos Ledeczi, Richard Alan Peters II, William H. Robinson, Sharon M. Weiss, Greg Walker, D. Mitchell Wilkes, James E. Wittig
RESEARCH ASSOCIATE PROFESSORS Michael L. Alles, Theodore Bapty, Zhaohua Ding, William T. Holman, Marcus H. Mendenhall, Sandeep Neema, Arthur F. Witulski
ASSISTANT PROFESSORS Bennett Landman, Jason Valentine, Robert J. Webster III, Yaqiong Xu
RESEARCH ASSISTANT PROFESSORS Bo K. Choi, Pierre-François D'Haese, Jack Noble, Enxia Zhang
ADJUNCT ASSISTANT PROFESSOR Thomas Daniel Loveless

THE electrical engineer 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 curricula of the electrical engineering and computer engineering majors are multifaceted. They provide 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 microelectronics, computer systems, robotics and control systems, and signal processing. Double majors may be arranged with some programs, including biomedical engineering and mathematics. 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. choose 6 hours of EE/CmpE program elective credit from among the following list:
   a. research-based independent study credit, or
   b. design domain expertise (DE) courses beyond the one course required by the program, or
   c. 300-level courses.
3. complete 3 hours of research-based independent study credit (with final written report) in addition to all other requirements.

The diploma designation is Honors in Electrical 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 engineering requires a minimum of 128 hours distributed as follows:

1. Mathematics (18 hours). Required courses: 155A, 155B, 175, 196, 216 (qualified students may substitute an honors mathematics sequence).
2. Basic Science (16 hours). Required courses: Chemistry 102A and 104A, Physics 116A-B and 118A-B, MSE 150 (or Chemistry 102B and 104B for some double majors).
3. Engineering Fundamentals (6 hours). Required courses: ES 140A-C, ES 210W.
4. Culminating Design Experience (7 hours). Required courses: EECE 295, EECE 296, EECE 297.
5. Electrical Engineering Core (24 hours). Required courses: CS 103 or 101; EECE 112, 116/116L, 213/213L, 214, 233, 235/235L.
6. Electrical Engineering Electives (18 hours). Defined by a structure that includes the five Electrical Engineering Areas of Concentration listed below. Students must complete at least two courses in each of two concentration areas. Students must complete at least one approved design domain expertise (DE) course as designated below. Other EECE electives to total 18 hours.

Electrical Engineering Areas of Concentration

Computer Engr.	Microelectronics	Signal/Image Processing	Robotics	Networking and Comm.
EECE 218	EECE 275	EECE 252	EECE 254	EECE 252
EECE 256 (DE)	EECE 280 (DE)	EECE 253 (DE)	EECE 257	EECE 261
EECE 275	EECE 283	EECE 254	EECE 258	
EECE 276 (DE)	EECE 284	EECE 256 (DE)	ME 271	
EECE 277 (DE)	EECE 285 (DE)	BME 263		
EECE 285 (DE)	EECE 288	EECE 286		
CS 274 (DE)	BME 271	CS 258		
ME 271		BME 271		

(DE) designates a Design Domain Expertise course

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 (18 hours).

   a. (9–18 hours). At least 9 hours must be taken from this list of approved engineering technical electives.
   BME (except 201, 240A-B, 241A-B)
   ChBE
   CE
   CS (except 101, 103, 151)
   EECE (above basic requirement of section 5 and 6 above)
   ME
   MSE (except 150)
   ENGM 273

   b. (0–9 hours). Up to 9 hours may be taken from this list of optional technical electives.
   ENGM 216, 221, 244
   MSE 150 (if Chemistry 102B is used as a basic science)
   Astronomy (except 102, 203)
   Biological Sciences
   Chemistry (except 101A-B, 102A-B)
   Earth and Environmental Sciences (except 100, 102)
   Mathematics above 194 (except 198, 252)
   Physics (except courses numbered 122 or below)
   Neuroscience 201, 255, 269
   Psychology 208, 209, 234, 236

9. Open Elective (3 hours).

Double majors have special curricula that require more than 128 hours and a different distribution of electives. See the EECS webpage or the EECE double major adviser for these curricula.

Specimen Curriculum for Electrical Engineering

		Semester hours FALL	SPRING
FRESHMAN YEAR †			
EECE 116 /116L†	Digital Logic	–	4
	Other freshman courses (see the engineering freshman-year specimen curriculum)	14	12
		14	16
SOPHOMORE YEAR			
Math 175	Multivariable Calculus	3	–
Math 196	Differential Equations with Linear Algebra	–	4
Physics 116B	General Physics II	3	–
Physics 118B	General Physics Laboratory II	1	–
CS 103 or 101 †	Programming and Problem Solving	3	–
EECE 112	Circuits I	3	–
EECE 213/213L	Circuits II	–	4
	Liberal Arts Core	3	3
	Technical Electives	–	6
		16	17
JUNIOR YEAR			
Math 216	Probability and Statistics for Engineering	–	3
ES 210W	Technical Communications	–	3
EECE 214	Signals and Systems	3	–
EECE 233	Electromagnetics	3	–
EECE 235/235L	Electronics I	4	–
	EE Program Electives ‡	–	9
	Liberal Arts Core	3	3
	Technical Elective	3	–
		16	18
SENIOR YEAR			
EECE 295	Project Management for EECE	3	–
EECE 296	EECE Design	–	3
EECE 297	Senior Engineering Design Seminar	1	–
	EE Program Electives ‡	6	3
	Liberal Arts Core	–	3
	Technical Electives	6	3
	Open elective	–	3
		16	15

† Electrical engineering majors are encouraged to take EECE 116 and EECE 116L in the spring of their freshman year in lieu of CS 103 or 101 (Basic Programming). Basic Programming may be taken in the sophomore year. CS 103 is recommended over CS 101 for electrical engineering majors.

‡ As described in Electrical Engineering Degree Requirements subsection 6. At least one design domain expertise (DE) course required prior to EECE 296.

Course descriptions begin on page 339.

General Engineering

DIRECTOR Christopher J. Rowe
PROFESSORS OF THE PRACTICE David A. Owens, Julie E. Sharp
ASSOCIATE PROFESSORS OF THE PRACTICE David A. Berezov, John A. Bers, Benjamin T. Jordan, Kenneth R. Pence, Christopher J. Rowe
ASSISTANT PROFESSOR OF THE PRACTICE Andrew Van Schaack
LECTURER Graham S. Hemingway
ADJUNCT INSTRUCTOR Julie S. Birdsong, Courtney L. Johnson

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.

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, business administration, 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.

Integrated Program in Management. Through a cooperative arrangement with the Owen Graduate School of Management, students majoring in engineering science may be admitted to the Owen School after their junior year. The first year of course work in management is taken during the normal senior year, meeting senior year requirements in engineering science. This reduces by one year the amount of time normally required to obtain the two degrees. Pursuit of the integrated program is contingent upon admission to the Owen School. Automatic admission is in no way implied, nor is special consideration given to engineering students. Further information may be obtained from the director of the Division of General Engineering.

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 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 Student Services of the School of Engineering.

Curriculum Requirements

Students must complete a minimum of 120 hours. In consultation with the academic adviser, each student must identify a program concentration containing a minimum of 27 hours, not counting certain introductory-level courses, which directly contributes to meeting stated career goals. The preparation provided by this 27-hour package, together with a solid foundation in basic engineering courses, provides the engineering science student with a strong and useful career base.

1. Basic science (16 hours). Chemistry 102A and 104A plus 12 hours from the group BSCI 110A-B/111A-B; Chemistry 102B/104B; Physics 116A-B and 118A-B; or MSE 150/150L with two courses in a single discipline.
2. Mathematics (14 hours). Required courses (11 hours): 155A-B, 175 (qualified students may substitute an honors mathematics sequence). Electives (3 hours): to be selected from math courses numbered 194 and above.
3. Engineering (39 hours).
   a) Engineering Fundamentals (12 hours): CS 101 or 103; ES 140A-C, 210W and ENGM 274.
   b) Engineering Core (12 hours) to be selected from courses in any of the following disciplines: BME, ChBE, CE, CS, EECE, ENVE, ES, MSE, ME, NANO, SC.
   c) Engineering electives (15 hours): Any Engineering School courses, including ENGM, may be used to complete the 39-hour engineering requirement.
4. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed under Degree Programs in Engineering.
5. Open Electives (6 hours).

6. Program concentration (27 hours). To be selected to provide a meaningful sequence of courses. Course work must be planned in advance and approved by the faculty adviser.

Course descriptions begin on page 342.

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. Undergraduates interested in engineering management have two options. They may earn the B.E. in another engineering discipline with a minor in engineering management, or they may earn the B.S. in engineering science with engineering management as their area of concentration.

The engineering management minor is designed to provide a working knowledge of the fundamentals of management and business.

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 221	Technology Strategy
ENGM 244	Applied Behavioral Science
ENGM 272	Enterprise Systems Design OR
ENGM 273	Systems Engineering
ENGM 274	Program and Project Management

The student must select one of the following courses:

ENGM 216	Engineering Economy
ENGM 242	Technology Marketing
ENGM 251	Accounting and Finance for Engineers
ENGM 253	Technology-Based Entrepreneurship
ENGM 254	Operations and Supply Chain Management
ENGM 264	Organizational Behavior
ENGM 275	Technology Assessment and Forecasting
ENGM 296	Engineering Management Capstone Project
CE 290	Reliability and Risk Case Studies
ENVE 296	Safety, Security, and Environmental Risk Management

Course descriptions begin on page 341.

Materials Science and Engineering

DIRECTOR James E. Wittig
DIRECTOR OF GRADUATE STUDIES Greg Walker
PROFESSORS EMERITI Jimmy L. Davidson, Leonard C. Feldman, William F. Flanagan, George T. Hahn, Donald L. Kinser, Barry D. Lichter, Taylor G. Wang
PROFESSORS Weng Poo Kang, Robert A. Weller
ADJOINT PROFESSOR James Bentley
ADJUNCT PROFESSOR Ashok Choudhury
ASSOCIATE PROFESSOR James E. Wittig
PROFESSOR OF THE PRACTICE Amrutur V. Anilkumar

MATERIALS are the limiting factor for most technological advances. The impact of materials on history is obvious, since technological progress in a given era is demarcated by the available materials. The Stone Age was followed by the Bronze Age and the Iron Age. The present period could be identified as the Silicon Age, which is only in its first century.

New materials allow for new technology and this is especially the case for the emerging field of nanoscience. As the size scale approaches nanometer dimensions, materials exhibit new and exciting physical properties. High performance metals, ceramics, polymers, semiconductors and composites are in demand throughout the engineering world and nanotechnology is proving to be the answer for many engineering problems. The U.S. National Science Foundation identified nanoscience and nanotechnology as a critical area for our future and created a national initiative to advance the processing and performance of nanomaterials. To accomplish these tasks, there is a need for specialists in materials science and engineering with an interdisciplinary background that combines engineering disciplines with the physical sciences.

The materials science and engineering program is integrated into the extensive ongoing nanotechnology research. The Vanderbilt Institute for Nanoscience and Engineering (VINSE) is at the center of this effort. Research areas include; nanofluidics, synthesis of semiconductor quantum dots, magnetic nanocrystals, nanoscale soft materials, optical properties of nanostructures, carbon nanotubes, nanodiamond devices, biological applications of nanocrystals, and molecular modeling and simulation of these nanoscale structures. This interdisciplinary research involves faculty from all of the engineering disciplines as well as faculty from chemistry, physics, and the medical school.

Two undergraduate options involving materials science and engineering are available. Students may pursue the B.S. in engineering science with materials science and engineering as their area of concentration or they may earn the B.E. in another engineering discipline with a minor in materials science and engineering.

Materials Science and Engineering Concentration

The B.S. in engineering science with a concentration in materials science and engineering requires satisfaction of the curriculum requirements of engineering science. The student must take 27 hours of materials science and engineering program electives that include MSE 150 and MSE 250 with the additional materials science related courses selected to provide a meaningful sequence that must be planned in advance and approved by the faculty adviser.

Materials Science and Engineering Minor

The minor in materials science and engineering is designated to provide the student with an understanding of engineering materials. The goal is to complement and add to the student's major in one of the other engineering disciplines for 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 150 and MSE 250. No more than 10 hours below the 200 level may be applied to the minor.

Program Requirements

MSE 150	Materials Science I
MSE 250	Materials Science II

The remaining 9 hours can be chosen from the following list of courses.

MSE 209C	Undergraduate Research
MSE 210AB	Special Topics
BME 101	Introductory Biomechanics
BME 103	Biomedical Materials: Structure, Property, and Applications
BME 274	Principles and Applications BioMicroElectroMechanical Systems (BioMEMS)
BME 281	Nanobiotechnology
ChBE 284	Semiconductor Materials Processing
ChBE 286	Molecular Aspects of Chemical Engineering
ChBE 287	Polymer Science and Engineering
ChBE 288	Corrosion Science and Engineering
CE 182	Mechanics of Materials
CE 235	Introduction to Structural Design
CE 293	Advanced Structural Steel Design
CE 294	Advanced Reinforced Concrete Design
CE 295	Mechanics of Composite Materials
EECE 283	Principles and Models of Semiconductor Devices
EECE 284	Integrated Circuit Technology and Fabrication
ME 202	Machine Analysis and Design
ME 251	Modern Manufacturing Processes
ME 275	Introduction to Finite Element Analysis
Chem 203	Inorganic Chemistry
Chem 230	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
Chem 235	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
Phys 225W	Introduction to Quantum Physics and Applications I
Phys 229a	Electricity, Magnetism and Electrodynamics
Phys 254	Physics of Condensed Matter

Course descriptions begin on page 343.

Mechanical Engineering

CHAIR Robert W. Pitz
DIRECTOR OF UNDERGRADUATE STUDIES Kenneth D. Frampton
DIRECTOR OF GRADUATE STUDIES Nilanjan Sarkar
PROFESSORS EMERITI Thomas A. Cruse, John H. Dunlap, William F. Flanagan, George T. Hahn, Donald L. Kinser, Barry D. Lichter, Robert L. Lott, Jr., Arthur M. Mellor, Carol A. Rubin, Taylor G. Wang, James J. Wert, John W. Williamson
PROFESSORS Michael Goldfarb, Robert W. Pitz, Nilanjan Sarkar, Alvin M. Strauss
ADJUNCT PROFESSOR Ahad Nasab
PROFESSOR OF THE PRACTICE Amrutur V. Anilkumar
ASSOCIATE PROFESSORS Eric J. Barth, Deyu Li, Nabil Simaan, Greg Walker
ASSOCIATE PROFESSORS OF THE PRACTICE Robert Joel Barnett, Kenneth D. Frampton
ADJOINT ASSOCIATE PROFESSOR Joseph A. Wehrmeyer
ASSISTANT PROFESSORS Leon M. Bellan, Jon F. Edd, Haoxiang Luo, Cary L. Pint, Pietro Valdastri, Jason G. Valentine, Robert J. Webster III
ADJOINT ASSISTANT PROFESSOR Peiyong Wang
ASSISTANT PROFESSOR OF THE PRACTICE Thomas J. Withrow

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. In general, rising juniors are admitted, although seniors may be accepted in special cases. Honors candidates choose their technical elective courses with the advice and consent of the department chair. Each candidate is expected to take ME 209c and at least 6 hours of graduate courses, including one 300-level course. A formal written report on the candidate's research is required. Honors candidates shall meet all Engineering School

requirements in the nontechnical areas. The diploma designation is Honors in Mechanical Engineering.

Facilities. Facilities are available for studies in thermodynamics, combustion, heat power, refrigeration, air conditioning, fluid flow, heat transfer, design, mechanical vibrations, acoustics, robotics, instrumentation, and biomechanics. Water and wind tunnels are used in general fluid dynamics studies. Laser diagnostic equipment is available for studies of the fundamental behavior of combustion processes. These are augmented by special equipment for investigations into the mechanism of fluid turbulence. Instrumentation for conducting experiments on mechanical systems is available to measure accurately a wide range of variables. The department also maintains various shops 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: 155A-B, 175, 198 (qualified students may substitute an honors mathematics sequence). Required elective: one from courses numbered 194 or above, except 252.
2. Basic Science (16 hours). Required courses: Chemistry 102A, 104A, MSE 150 (or Chemistry 102B and 104B), Physics 116A-B and 118A-B.
3. Engineering Science (25 hours). Required courses: ES 140A-C; CE 180, 182; CS 101 or CS 103; EECE 112; ME 190, 220, 224, MSE 232.
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 160, 171, 202, 204, 213, 234, 242, 243, 248, and 297.
7. Technical electives (9 hours). To be selected from course offerings in any technical or scientific field except Astronomy 115F, 203, Biological Sciences 105, 115F, Chemistry 101A-B, 115F, Computer Science 151, Earth and Environmental Sciences 108, 115F, 205, Engineering Management 244, 264, Math 252, Physics 110, 111, 115F. At least 3 hours must be numbered 200 and above.
8. Professional (ME) depth (a minimum of 9 hours). Each student must choose at least 9 hours of ME elective courses.

No one-credit-hour ME course except 209A 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 in the English language must be included on a graded basis.

Specimen Curriculum for Mechanical Engineering

		Semester hours FALL	SPRING
SOPHOMORE YEAR			
ME 160	Introduction to Mechanical Engineering Design	3	–
Math 175	Multivariable Calculus	3	–
Math 198	Methods of Ordinary Differential Equations	–	3
Physics 116B	General Physics II	3	–
Physics 118B	General Physics Laboratory II	1	–
CE 180	Statics	3	–
ME 190	Dynamics	–	3
ME 171	Instrumentation Laboratory	–	2
ME 220	Thermodynamics I	–	3
EECE 112	Circuits I	–	3
	Liberal Arts Core	3	3
		16	17
JUNIOR YEAR			
ME 202	Machine Analysis and Design	3	–
ME 204	Mechatronics	–	3
ME 234	System Dynamics	4	–
ME 224	Fluid Mechanics	3	–
ME 248	Heat Transfer	–	3
CE 182	Mechanics of Materials	3	–
MSE 232	Strength and Structure of Engineering Materials	1	–
	Open Elective	–	3
	Mechanical Engineering Elective	–	3
	Liberal Arts Core	3	–
	Math Elective	–	3
		17	15
SENIOR YEAR			
ME 242	Design Synthesis	2	–
ME 243	Design Projects	–	3
ME 213	Energetics Laboratory	2	–
ME 297	Senior Engineering Design Seminar	1	–
	Liberal Arts Core	3	3
	Technical Elective	6	3
	Mechanical Engineering Elective	3	3
	Open Elective	–	3
		17	15

Course descriptions begin on page 343.

Nanoscience and Nanotechnology

DIRECTORS Paul E. Laibinis, Sandra J. Rosenthal

Affiliated Faculty

PROFESSORS Peter T. Cummings (Chemical and Biomolecular Engineering), Philippe M. Fauchet (Electrical Engineering), Daniel M. Fleetwood (Electrical Engineering), Kenneth F. Galloway (Electrical Engineering), Todd D. Giorgio (Biomedical Engineering), Richard F. Haglund, Jr. (Physics), Timothy P. Hanusa (Chemistry), Frederick R. Haselton (Biomedical Engineering), G. Kane Jennings (Chemical and Biomolecular Engineering), Weng P. Kang (Electrical Engineering), Paul E. Laibinis (Chemical and Biomolecular Engineering), M. Douglas LeVan (Chemical and Biomolecular Engineering), Charles M. Lukehart (Chemistry), Clare M. McCabe (Chemical and Biomolecular Engineering), Sokrates T. Pantelides (Physics), Peter N. Pintauro (Chemical and Biomolecular Engineering), David W. Piston (Physics), Sandra J. Rosenthal (Chemistry), Ronald D. Schrimpf (Electrical Engineering), Norman H. Tolk (Physics), John P. Wikswo, Jr. (Physics)

ASSOCIATE PROFESSORS David E. Cliffel (Chemistry), Scott A. Guelcher (Chemical and Biomolecular Engineering), Eva M. Harth (Chemistry), Deyu Li (Mechanical Engineering), Bridget R. Rogers (Chemical and Biomolecular Engineering), Florence Sanchez (Civil Engineering), Greg Walker (Mechanical Engineering), Sharon M. Weiss (Electrical Engineering), James E. Wittig (Materials Science and Engineering), David W. Wright (Chemistry)

ASSISTANT PROFESSORS Rizia Bardhan (Chemical and Biomolecular Engineering), Kirill Bolotin (Physics), Craig L. Duvall (Biomedical Engineering), Janet E. MacDonald (Chemistry), Cary L. Pint (Mechanical Engineering), Jason G. Valentine (Mechanical Engineering), Kalman Varga (Physics), Yaqiong Xu (Physics)

RESEARCH ASSOCIATE PROFESSOR Anthony B. Hmelo (Physics)

RESEARCH ASSISTANT PROFESSORS Bo Choi (Electrical Engineering), Dmitry Koktysh (Chemistry), James R. McBride (Chemistry)

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. Chemistry 240. (3 hours)
2. Nanoscience and Nanotechnology 250. (3 hours)
3. Physics 266. (3 hours)
4. Elective courses. 6 hours selected from the following list of approved subjects.

BME 274	Principles and Applications of BioMicro ElectroMechanical Systems (BioMEMS)
BME 281	Nanobiotechnology
CHBE 284	Semiconductor Materials Processing
CHBE 285	Molecular Simulation
CHBE 286	Molecular Aspects of Chemical Engineering
CHBE 287	Polymer Science and Engineering
CHBE 288	Corrosion Science and Engineering
CHEM 230	Physical Chemistry: Quantum Mechanics, Spectroscopy, and Kinetics
CHEM 235	Macromolecular Chemistry: Polymers, Dendrimers, and Surface Modification
CHEM 350A	Chemistry of Inorganic Materials
EECE 283	Principles and Models of Semiconductor Devices
EECE 284	Integrated Circuit Technology and Fabrication
EECE 285	VLSI Design
EECE 288	Optoelectronics
EECE 306	Solid-State Effects and Devices
IMS 320	Nanoscale Science and Engineering
ME 320	Statistical Thermodynamics
ME 323	Introduction to Micro/ Nanoelectromechanical Systems
ME 365	Micro/Nanoscale Energy Transport
MSE 310	Atomic Arrangements in Solids
PHYS 225	Introduction to Quantum Dynamics and Applications I
PHYS 254	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

DIRECTORS Robert E. Bodenheimer, Thomas J. Palmeri, David A. Weintraub

Affiliated Faculty

PROFESSORS Peter T. Cummings (Chemical and Biomolecular Engineering), Mark N. Ellingham (Mathematics), David Furbish (Earth and Environmental Sciences), Gordon D. Logan (Psychology), Terry P. Lybrand (Chemistry and Pharmacology), Charles F. Maguire (Physics), Clare M. McCabe (Chemical and Biomolecular Engineering), Jeffrey D. Schall (Psychology and Neuroscience), Paul Sheldon (Physics), David A. Weintraub (Astronomy), Robert Weller (Electrical Engineering)

ASSOCIATE PROFESSORS Robert E. Bodenheimer (Computer Science), Michael I. Miga (Biomedical Engineering), Thomas J. Palmeri (Psychology and Neuroscience), Greg Walker (Mechanical Engineering)

ASSISTANT PROFESSORS Andreas A. Berlind (Astronomy), Kelly Holley-Bockelmann (Astronomy), Bennett Landman (Electrical Engineering), Haoxiang Luo (Mechanical Engineering), Jens Meiler (Chemistry), Sean Polyn (Psychology and Neuroscience), Antonis Rokas (Biological Sciences), Kalman Varga (Physics)

ASSOCIATE PROFESSOR OF THE PRACTICE Gerald H. Roth (Computer Science)

LECTURER Zhiao Shi (ACCRE)

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.

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 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.

The minor in scientific computing requires 15 credit hours, distributed as follows:

1. Computer Science 101 or 103. (3 hours)
2. Computer Science 204 (CS 201 may be substituted for 204 with the approval of a Program Director). (3 hours)
3. Scientific Computing 250. (3 hours)
4. 6 hours of electives. Electives include courses in the Scientific Computing (SC) minor, courses approved for SC credit that are in another subject area, courses that meet the approval of a Director of the SC minor, and directed or independent study with a faculty member affiliated with the SC minor.

SC 250	Scientific Computing Toolbox
SC 291	Special Topics in Scientific Computing. [1-3 each semester]
SC 292	Special Topics in Scientific Computing. [1-3 each semester]
SC 293A	Directed Study in Scientific Computing
SC 293B	Directed Study in Scientific Computing
SC 293C	Directed Study in Scientific Computing
SC 295A	Independent Study in Scientific Computing
SC 295B	Independent Study in Scientific Computing
SC 295C	Independent Study in Scientific Computing

Approved courses by subject area are listed below. These courses either provide a detailed treatment of a core scientific computing tool and technique or combine scientific computing tools and techniques with a substantive area of science or engineering.

Astronomy 252, Stellar Astrophysics
Astronomy 253, Galactic Astrophysics
Biological Sciences 272, Genome Science
Biomedical Engineering 279, Modeling Living Systems for Therapeutic Bioengineering
Chemical and Biomolecular Engineering 285, Molecular Simulation
Computer Science 274, Modeling and Simulation
Mathematics 226, Introduction to Numerical Mathematics
Mathematics 286, Numerical Analysis
Mathematics 287, Nonlinear Optimization
Mathematics 288, Linear Optimization
Mechanical Engineering 263, Computational Fluid Dynamics and Multiphysics Modeling
Physics 223C, Computational Thermodynamics and Statistical Physics
Physics 257, Computational Physics

Engineering Courses

Biomedical Engineering

BME 101. Introductory Biomechanics. Structure and mechanics of the musculoskeletal system and to 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 101 or CE 180. Prerequisite: PHYS 116A, MATH 155B, and CS 103. FALL. [3]

BME 103. Biomedical Materials: Structure, Property, and Applications. 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. Prerequisite: Chem 102B, BME 101. SPRING. [3]

BME 201. Biomedical Engineering Ethics. Ethical principles in the practice of biomedical engineering: responsibility in professional practice, health care, research and mentoring. Development of skills in perceptiveness, discernment, competency and visualization of alternatives through case studies. Prerequisite: Junior or senior standing. FALL. [3] (Only available for open elective credit for biomedical engineering majors) (Not currently offered)

BME 203. Biomaterial Manipulation. 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 101, BSCI 110A/111A. Corequisite: BME 103. SPRING. [3]

BME 210. Physiological Transport Phenomena. An introduction to the mechanics of fluids, heat transfer, and mass transfer in living systems. Basic theories of transport phenomena are presented and applied to mammalian and cellular physiology as well as to the design of medical devices. Prerequisite: BME 101, 103 or equivalent, MATH 196 or 198. [3]

BME 240A. Undergraduate Research. 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. Prerequisite: Consent of course director. [1-3 each semester; maximum of 6 hours total for all semesters of BME 240 and 241]

BME 240B. Undergraduate Research. A continuation of the research in 240A 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 240 and 241]

BME 241A. Undergraduate Project in Biomedical Engineering Education. An independent project, either developmental, experimental, or otherwise investigational in nature, that explores a selected topic in biomedical engineering education. The project is to be conducted under the supervision of a biomedical engineering faculty member or another faculty member approved by the course director. Prerequisite: Consent of course director. [1-3 each semester; maximum of 6 hours total for all semesters of BME 240 and 241]

BME 241B. Undergraduate Project in Biomedical Engineering Education. A continuation of the work in 241A or work in a different area of bioengineering education. Prerequisite: Consent of course director. [1-3 each semester; maximum of 6 hours total for all semesters of BME 240 and 241]

BME 249. Biomedical Engineering Service Learning and Leadership. Identification of local and global human needs, methods of need quantification, implementation of engineering solutions, sustainability, preparation of grant proposals, leadership principles. Independent service project required. Prerequisite: Junior standing. FALL. [3]

BME 251. Systems Physiology. An introduction to quantitative physiology from the engineering point of view. Descriptive physiology of several organ systems (nervous, musculoskeletal, cardiovascular, gastrointestinal). Mathematical modeling and computer simulation of organ systems and physiologic control mechanisms. Prerequisite: CS 103. Corequisite: BSCI 110A. FALL. [3]

BME 252. Systems Physiology. An introduction to quantitative physiology from the engineering point of view. Descriptive physiology of several organ systems (blood, immune, endocrine, respiratory, renal, reproductive). Mathematical modeling and computer simulation of organ systems and physiologic control mechanisms. Prerequisite: CS 103. Corequisite: BSCI 110A. SPRING. [3]

BME 253. Neuromuscular Mechanics and Physiology. Quantitative characterization of the physiological and mechanical properties of the neuromuscular system. Quantitative models of system components. Applications to fatigue, aging and development, injury and repair, and congenital and acquired diseases. Prerequisite: BME 101, BME 251. SPRING. [3]

BME 255W. Biomedical Engineering Laboratory. Laboratory experiments in biomechanics, thermodynamics, biological transport, signal analysis, biological control, and biological imaging. Emphasis is placed on current methods, instrumentation, and equipment used in biomedical engineering; on oral presentation of results; and on the writing of comprehensive reports. One lecture and one three-hour laboratory per week. Prerequisite: BME 210, BME 251. [3]

BME 256. Bioelectricity. Cellular basis of the electrical activity of nerve and muscle cells; action potential propagation; voltage- and ligand-gated ion channels; space, voltage, and patch clamp; and electrical, optical, and magnetic measurements of bioelectric activity in cells, isolated tissues, intact animals, and humans. Prerequisite: MATH 196 or 198, BSCI 110A. FALL. [3]

BME 258. Foundations of Medical Imaging. 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 ionizing radiation (including CT), ultrasound, magnetic resonance, and nuclear (including SPECT and PET). Methods of evaluating image quality. Prerequisite: PHYS 116B, 118B, MATH 196. Credit offered for only one of BME 258 and PHYS 228. SPRING. [3]

BME 260. Analysis of Biomedical Data. Application of modern computing methods to the statistical analysis of biomedical data. Sampling, estimation, analysis of variance, and the principles of experimental design and clinical trials are emphasized. Prerequisite: MATH 175. SPRING. [3]

BME 263. Signal Measurement and Analysis. Discrete time analysis of signals with deterministic and random properties and the effect of linear systems on these properties. Brief review of relevant topics in probability and statistics and introduction to random processes. Discrete Fourier transforms, harmonic and correlation analysis, and signal modeling. Implementation of these techniques on a computer is required. Corequisite: BME 260 or MATH 216. SPRING. [3]

BME 271. Biomedical Instrumentation. Introduces methods used to determine physiological functions and variables from the point of view of optimization in the time and frequency domain and the relation to physiological variability. Laboratory exercises stress instrumentation usage and data analysis. Three lectures and one laboratory. Prerequisite: EECE 213 and 213L. FALL, SPRING. [4]

BME 272. Design of Biomedical Engineering Devices and Systems I. 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 271. Prerequisite: BME 251. [2]

BME 273. Design of Biomedical Engineering Devices and Systems II. 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 272. [3]

BME 274. Principles and Applications of BioMicroElectroMechanical Systems (BioMEMS). 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]

BME 274L. BioMicroElectroMechanical Systems Laboratory. Design, fabrication, and testing of BioMEMS devices for applications in the life sciences. Practical experience in photolithography, replica molding to fabricate microfluidic devices, and multilayer devices to assemble microfluidic devices with active values. Corequisite: BME 274. FALL. [1]

BME 275. Therapeutic Bioengineering. Explores the engineering aspects of treating disease or disorders. Surgical mechanics, diffusion therapies including chemical and energy diffusion, image-guided therapies, and the role of discovery and design in the development of medical treatments. Prerequisite: EECE 213, BME 101, BME 210. Corequisite: BME 271; an imaging course may be helpful. SPRING. [3]

BME 276. Biological Basis of Imaging. Physical and chemical relationships between biological characteristics of tissue and image contrast in major medical imaging modalities. Imaging modalities include x-ray, MRI, PET, and ultrasound. Applications include neurological disorders, neurological function, cardiac function and disease, cancer, and musculoskeletal physiology. Prerequisite: BME 258 or equivalent. SPRING. [3]

BME 277. Quantitative and Functional Imaging. Introduction to 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: BME 258 and CS 103 or equivalent. FALL. [3]

BME 279. Modeling Living Systems for Therapeutic Bioengineering. Introduction to computer modeling and simulation in therapeutic bioengineering processes. Building computer models and using modern modeling software tools. Introduction to numerical techniques to solve differential equations and origin of mathematical models for biotransport, biomechanics, tumor/virus growth dynamics, and model-based medical imaging techniques. Prerequisite: MATH 196 or MATH 198, CS 103 or equivalent, BME 101 or equivalent mechanics course. SPRING. [3]

BME 280. Introduction to Tissue Engineering. Basic principles, methods, and current topics in tissue engineering. Integration of biology, materials science, and biomechanics in the design and fabrication of engineered tissues. Biomaterials for scaffolding, stem cell applications, bioreactor design, and practical methods for testing. Case studies and guest lectures from experts in the field. Prerequisite: BSCI 110A; CHEM 102B or equivalent. FALL. [3]

BME 281. Nanobiotechnology. 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 110A; BME 210 or CHBE 230 or ME 224. SPRING. [3]

BME 281L. Nanobiotechnology Laboratory. Laboratory experiments in the characterization of nanomaterial interactions with living systems. Biological surface functionalization of inorganic nanoparticles. Measurement of cultured mammalian cell response to nanostructures. Quantitative structure/function assessment of nanostructures in living systems. Corequisite: BME 281. SPRING. [1]

BME 285. Lasers in Surgery and Medicine. 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 116B. FALL. [3]

BME 285L. Biomedical Optics Laboratory. Practical experience in basics of operating lasers, using optics, fiber optics and interferometry. Computer-aided design of optical systems and computer simulations of light tissue interaction. Application of optical concepts to biomedical problems. Prerequisite: Senior standing. Corequisite: BME 285. FALL. [1]

BME 290A. Special Topics. Different topics taught as A-D. [3] (Offered periodically)

BME 290B. Special Topics. Different topics taught as A-D. [3] (Offered Periodically)

BME 290C. Special Topics. Different topics taught as A-D. [3] (Offered periodically)

BME 290D. Special Topics. Different topics taught as A-D. [3] (Offered periodically)

BME 297. Senior Engineering Design Seminar. 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. Required, to be taken in conjunction with BME 272. FALL. [1]

BME 301A. Quantitative Methods in Biomedical Engineering (Part A). Mathematics, quantitative analysis and computation for biomedical engineering applications. The first in a three-unit sequence consisting of BME 301A, BME 301B, and BME 301C (5 weeks each). Probability and statistics, hypothesis testing, sample size estimation, power analysis, multivariate analysis. FALL. [1]

BME 301B. Quantitative Methods in Biomedical Engineering (Part B). Mathematics, quantitative analysis and computation for biomedical engineering applications. The second in a three-unit sequence consisting of BME 301A, BME 301B, and BME 301C (5 weeks each). Linear system models, continuous and discrete signals, Fourier transforms, application in signal analysis. FALL. [1]

BME 301C. Quantitative Methods in Biomedical Engineering (Part C). Quantitative Methods in Biomedical Engineering (Part C). Mathematics, quantitative analysis and computation for biomedical engineering applications. The third in a three-unit sequence consisting of BME 301A, BME 301B, and BME 301C (5 weeks each). Numerical differentiation, and integration, optimization, nonlinear ordinary and partial differential equations, applications in modeling and image analysis. FALL. [1]

BME 302A. Applied Physics for Biomedical Engineering (Part A). Applied physics essential for biomedical engineering. The first in a three-unit sequence consisting of BME 302A, BME 302B, and BME 302C (5 weeks each). Electromagnetic, interaction of charges, currents and fields in biological systems, bioelectricity and biomagnetic fields. FALL. [1]

BME 302B. Applied Physics for Biomedical Engineering (Part B). Applied physics essential for biomedical engineering. The second in a three-unit sequence consisting of BME 302A, BME 302B, and BME 302C (5 weeks each). Optics, wave and particle properties of light in

tissue, coherence techniques and interferometry in tissue, laser tissue interaction. FALL. [1]

BME 302C. Applied Physics for Biomedical Engineering (Part C). Applied physics essential for biomedical engineering. The third in a three-unit sequence consisting of BME 302A, BME 302B, and BME 302C (5 weeks each). Continuum mechanics, viocoelastic models of tissue, contitutive relationships for tissue and biological fluid mechanics with applications to biology, physiology and devices. FALL. [1]

BME 303A. Cellular and Molecular Biomedical Engineering (Part A). Cellular and Molecular Biomedical Engineering (Part A). Techniques and applications of cellular and molecular biology in biomedical engineering. The first in a three-unit sequence consisting of BME 303A, BME 303B, and BME 303C (5 weeks each). Cellular systems, DNA, RNA and proteins, control of gene expression, protein synthesis and trafficking, cell-cell interactions, biotechnology applications. SPRING. [1]

BME 303B. Cellular and Molecular Biomedical Engineering (Part B). Techniques and applications of cellular and molecular biology in biomedical engineering. The second in a three-unit sequence consisting of BME 303A, BME 303B and BME 303C (5 weeks each). Biomaterial properties, interfacial phenomena in vivo, nonmaterial applications. SPRING. [1]

BME 303C. Cellular and Molecular Biomedical Engineering (Part C). Techniques and applications of cellular and molecular biology in biomedical engineering. The third in a three-unit sequence consisting of BME 303A, BME 303B, and BME 303C (5 weeks each). Biotransport, compartmental analysis, diffusion and active transport, convection applications. SPRING. [1]

BME 304A. Measurement Methods for Biomedical Engineering (Part A). Instrumentation and imaging for quantitative measurements in biomedical applications. The first in a three-unit sequence consisting of BME 304A, BME 304B, and BME 304C (5 weeks each). Biomedical instrumentation, signal processing, measurement of electrical signals in the body, light, mechanical and chemical sensors. SPRING. [1]

BME 304B. Measurement Methods for Biomedical Engineers (Part B). Instrumentation and imaging for quantitative measurements in biomedical applications. The second in a three-unit sequence consisting of BME 304A, BME 304B, and BME 304C (5 weeks each). Image properties, non-invasive imaging modalities, image reconstruction from projections and Fourier-encoded data. SPRING. [1]

BME 304C. Measurement Methods for Biomedical Engineers (Part C). Instrumentation and imaging for quantitative measurements in biomedical applications. The third in a three-unit sequence consisting of BME 304A, BME 304B, and BME 304C (5 weeks each). Contrast mechanisms, interactions of electromagnetic radiation and acoustic waves with tissues, factors affecting nuclear magnetic resonance signals, imaging contrast agents. SPRING. [1]

BME 305. Research and Professional Development in Biomedical Engineering. Database search strategies, interpreting engineering and scientific literature, communication skills, engineering design, proposal writing, preparation of engineering publications, technology transfer/ intellectual property, engineering laboratory documentation, regulatory oversight, ethics, funding. SPRING. [3]

BME 313. Advanced Biomechanics. Application of advanced concepts in statics, dynamics, continuum mechanics, and strength of materials to biological systems. Topics include measurement of mechanical properties of biological materials; rheological properties of blood; mechanics of cells, bone, skeletal muscle, and soft tissue; normal and abnormal dynamics of human movement; mechanics of articular joint movement; pulmonary mechanics; cardiac mechanics; arterial mechanics; mechanics of veins and collapsible vessels; and mechanics of flow in the microcirculation. Prerequisite: BME 101, BME 210 or equivalent. [3]

BME 317. Physiological Transport Phenomena. The quantitative description of momentum transport (viscous flow) and mass transport (convection and diffusion) in living systems. Prerequisite: BME 210 or equivalent courses in fluid dynamics and mass transfer. SPRING. [3]

BME 319. Engineering Models of Cellular Phenomena. Application of engineering methods to model and quantify aspects of cell physiology. Topics include receptor mediated cell processes, cell-cell signaling, cooperative barrier behavior, cell structural components, and cell motility. SPRING. [3] (Offered alternate years)

BME 320. Laser-Tissue Interaction and Therapeutic Use of Lasers. Optical and thermal aspects and models of the interaction between laser/light and biological tissue as it is used for therapeutic applications in medicine and biology. Issues and objectives in therapeutic and surgical applications of lasers, overview of state-of-the-art topics and current research. FALL. [3]

BME 321. Optical Diagnosis: Principles and Applications. Applications of light and tissue optical properties for the diagnosis of tissue pathology. Basic scientific and engineering principles for developing techniques and devices that use light to probe cells and tissues. Recent applications of different optical diagnostic techniques. SPRING. [3]

BME 325. Physical Measurements on Biological Systems. A survey of the state-of-the-art in quantitative physical measurement techniques applied to cellular or molecular physiology. Topics include the basis for generation, measurement, and control of the transmembrane potential; electrochemical instrumentation; optical spectroscopy and imaging; x-ray diffraction for determination of macromolecular structure; magnetic resonance spectroscopy and imaging. Prerequisite: Physics 225 or consent of instructor. SPRING. [3]

BME 329. Advanced Computational Modeling and Analysis in Biomedical Engineering. Survey of current topics within biomedical modeling: biotransport, biomechanics, tumor and virus growth dynamics, model-based medical imaging techniques, etc. Mathematical development and analysis of biomedical simulations using advanced numerical techniques for the solution of ordinary and partial differential equations. Emphasis will be on graduate research related topics. SPRING. [3]

BME 330. Cancer Imaging. Applications of noninvasive, in vivo imaging (i.e., MRI, optical, CT, SPECT, PET, and ultrasound) to cancer biology. Emphasis on assessing the response of tumors to treatment using emerging and quantitative imaging techniques. Prerequisite: BME 258 or BME 302B/304B/304C or PHYS 228. SPRING. [3] (Offered alternate years)

BME 331. Neuroimaging. Applications of noninvasive imaging techniques including MRI, fMRI, optical, EEG, and PET to the study of neural systems. Emphasis on the human brain, with a focus on current scientific literature. Prerequisite: BME 258 or BME 302B/304B/304C or PHYS 228. FALL. [3] (Offered alternate years)

BME 369. Master's Thesis Research.

BME 373. Design of Medical Products, Processes, and Services. Medical design projects involving teams of graduate level engineering and management students. Projects are solicited from industry or universities and are undertaken from the initial phase of a design request to the end product, prototype, plan, or feasibility analysis. Prerequisite: BME 272 or equivalent. SPRING. [3]

BME 377. Advanced Quantitative and Functional Imaging. Analysis of non-invasive image data to assess tissue structure and function in the body. Modeling and parameter estimation based on medical imaging data. Measurements of tissue volume, fiber structure, blood flow, brain function, and receptor density. Prerequisite: BME 301B-C, and BME 304B-C, or equivalent. No credit for both BME 277 and 377. FALL. [3]

BME 378. Magnetic Resonance Imaging Methods. MR techniques to image tissue for clinical evaluation and research. RF pulses, k-space trajectories, chemical shift, motion, flow, and relaxation. Derivation of signal equations for pulse sequence design and analysis. Course includes hands-on experimental studies. Prerequisite: BME 304B-C, or equivalent. SPRING. [3]

BME 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special non-degree students. [Variable credit: 0-12]

BME 389. Master of Engineering Project.

BME 391. Biomedical Research Seminar. [1]

BME 392. Biomedical Research Seminar. [1]

BME 393. Biomedical Research Seminar. [1]

BME 394. Biomedical Research Seminar. [1]

BME 395A. Special Topics. Different topics taught as A-D graduate level. [1-3]

BME 395B. Special Topics. Different topics taught as A-D graduate level. [1-3]

BME 395C. Special Topics. Different topics taught as A-D graduate level. [1-3]

BME 395D. Special Topics. Different topics taught as A-D graduate level. [1-3]

BME 399. Ph.D. Dissertation Research.

Chemical and Biomolecular Engineering

CHBE 161. Chemical Process Principles. A foundation for advanced work in chemical engineering. Process problems of a chemical and physico-chemical nature are considered. Emphasis is on stoichiometry, material balances, and energy balances required for design computation. FALL. [3]

CHBE 162. Chemical Engineering Thermodynamics. 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. SPRING. [3]

CHBE 180. Modeling and Simulation in Chemical Engineering. 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 161. Corequisite: MATH 198, CS 103. SPRING. [3]

CHBE 220. Molecular and Cell Biology for Engineers. 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. Credit given for only one of CHBE 220 or BSCI 110A. Prerequisite: CHEM 102B. FALL. [3]

CHBE 223. Phase Equilibria and Stage-Based Separations. 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 162, CHBE 180. FALL. [3]

CHBE 225. Chemical Reaction Engineering. 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: CHEM 218A or 220A, CHBE 223. SPRING. [3]

CHBE 228W. Chemical Engineering Laboratory I. Laboratory experiments in momentum, energy and mass transport, thermodynamics, and separations, focusing on instrumentation and unit operations. Statistical treatment of data, error analysis, written reports, and oral presentations are emphasized. Two lecture hours and one 5-hour laboratory per week. Prerequisite: CHBE 223, CHBE 230. Corequisite: CHBE 231. SPRING. [4]

CHBE 229W. Chemical Engineering Laboratory II. Laboratory experiments in unit operations covering reactions and separations. Interpretation of data for equipment and process design. Writing and oral presentations are emphasized. One lecture hour and one 5-hour laboratory per week. Prerequisite: CHBE 225, CHBE 228W, CHBE 231. Corequisite: CHBE 283. FALL. [3]

CHBE 230. Fluid Mechanics and Heat Transfer. Principles of momentum and energy transport and their application to the analysis and design of chemical and biological engineering systems. Corequisite: MATH 198. FALL. [3]

CHBE 231. Mass Transfer and Rate-Based Separations. Principles of mass transfer and their application to the analysis of chemical and biological engineering systems. Design of rate-based separation operations. Prerequisite: CHBE 230. SPRING. [3]

CHBE 233W. Chemical Engineering Processes and Product Design. A systematic approach to design and safety practices for chemical process operations. Process and product design, economic evaluation of alternatives, ethics, and a cost and safety analysis of a typical chemical, biological, or petroleum process and products. Steady-state and dynamic process simulations required. Three lecture hours and one two-hour laboratory each week. Prerequisite: CHBE 223, CHBE 225, CHBE 231. FALL. [4]

CHBE 234W. Chemical Engineering Design Projects. Team-based, semester-long design project. Evaluation through periodic oral and written presentations, a final written report, and a poster report. Prerequisite: CHBE 233W. SPRING. [3]

CHBE 242. Chemical Process Control. 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: MATH 198. SPRING. [3]

CHBE 246. Chemical Engineering Projects. Opportunities for individual students to do research or design work under guidance of a faculty member. Requires faculty sponsorship of the project. [Variable credit: 1-3 each semester]

CHBE 247. Chemical Engineering Projects. Opportunities for individual students to do research or design work under guidance of a faculty member. Requires faculty sponsorship of the project. [Variable credit: 1-3 each semester]

CHBE 280. Atmospheric Pollution. Fundamentals of atmospheric pollution and control. The sources and nature of gaseous and particulate air pollutants, the relation of meteorological conditions to their dispersal, and their effects on health and materials are discussed along with administration, standards, and control of air pollution. Prerequisite: Junior standing. SPRING. [3]

CHBE 282. Metabolic Engineering. 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 110A or CHBE 220; junior standing. SPRING. [3]

CHBE 283. Bioprocess Engineering. 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 110A or CHBE 220; CHBE 225, CHBE 230. FALL. [3].

CHBE 284. Semiconductor Materials Processing. Introduction to the materials processing unit operations of silicon device manufacturing. Topics include 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. FALL. [3]

CHBE 285. Molecular Simulation. Introduction to the modern tools of statistical mechanics, such as Monte Carlo and molecular dynamics simulation, and variations. Understanding the methods, capabilities, and limitations of molecular simulation and applications to simple and complex fluids relevant to the chemical and related processing industries. Prerequisite: CHBE 223, CHEM 230. [3]

CHBE 286. Molecular Aspects of Chemical Engineering. 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 218A or 220A; CHBE 162. [3]

CHBE 287. Polymer Science and Engineering. 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 162, a basic understanding of organic and physical chemistry. [3]

CHBE 288. Corrosion Science and Engineering. 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 230 or graduate standing. SPRING. [3]

CHBE 290. Special Topics. Prerequisite: Consent of instructor. [3] (Offered on demand)

CHBE 297. Senior Engineering Design Seminar. 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]

CHBE 310. Applied Mathematics in Chemical Engineering. Chemical engineering applications of advanced mathematical methods. Analytical and numerical methods for ordinary and partial differential equations. Emphasis on recognizing the form of a mathematical model and possible solution methods. Applications in heat and mass transfer, chemical kinetics. FALL. [3]

CHBE 311. Advanced Chemical Engineering Thermodynamics. Application of the thermodynamics method to chemical engineering problems. Development of the first, second, and third laws of thermodynamics; estimation and correlation of thermodynamic properties; chemical and phase equilibria; irreversible thermodynamics. FALL. [3]

CHBE 312. Transport Phenomena. The theory of non-equilibrium processes. Development of the analogy between momentum, energy, and mass transport with applications to common engineering problems. SPRING. [3]

CHBE 313. Applied Chemical Kinetics. Experimental methods in kinetics. Kinetics of industrial reactions and reactor design. Absorption and catalytic systems are considered. FALL. [3]

CHBE 315. Systems Analysis for Process Design and Control. The design and control of chemical process plants, including economic optimization under steady state and transient conditions. [3]

CHBE 320. Surfaces and Adsorption. Surface energy, capillarity, contact angles and wetting, surface films, insoluble monolayers, solid surfaces, membranes, surface area determination, adsorption, adhesion, interface thermodynamics, friction and lubrication, interface in composites, relationships of surface to bulk properties of materials. FALL. [3]

CHBE 369. Master's Thesis Research.

CHBE 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special non-degree students. [Variable credit: 0-12]

CHBE 389. Master of Engineering Project.

CHBE 395. Professional Communication Skills for Engineers. Introduction of graduate-level written and oral communication skills for engineers. Skills needed to produce peer-reviewed journal publications, research proposals, and research presentations are covered. SPRING. [1]

CHBE 397. Special Topics. [Variable credit: 1-3 each semester]

CHBE 398. Seminar. [0]

CHBE 399. Ph.D. Dissertation Research.

Civil Engineering

CE 160. Civil and Environmental Engineering Information Systems I. Part I of a two-semester sequence course providing an introduction to information technologies utilized by civil and environmental engineers. Computer graphics and engineering drawings in civil and environmental engineering. Plans reading in civil engineering project development. Software tools to facilitate communication of engineering concepts and models via modern computer technology. FALL. [2]

CE 161. Civil and Environmental Engineering Information Systems II. Part II of a two-semester sequence providing an introduction to information technologies utilized by civil and environmental engineers. Project-oriented course focusing on developing skills in leveling, mapping, and GIS. Integration of CAD and surveying in hands-on, team-oriented projects addressing specific civil engineering information systems. Project work will include familiarization with, and use of, department information systems instrumentation. Computer applications. Prerequisite: CE 160. SPRING. [2]

CE 180. Statics. Application to systems of forces in two and three dimensions (particles and rigid bodies), resultants, equivalent systems, and equilibria. Vector notation, introduction to shear and moment diagrams, moments of inertia, friction, three-dimensional representation. Credit offered for only one of CE 180 or BME 101. Corequisite: MATH 155B. FALL, SPRING, SUMMER. [3]

CE 182. Mechanics of Materials. 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 180. FALL, SPRING, SUMMER. [3]

CE 200A. Directed Study. 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. FALL, SPRING, SUMMER. [Variable credit: 1-3 each semester]

CE 200B. Directed Study. Continuation of CE 200A in the same or another area of civil and environmental engineering. Prerequisite: CE 200A and one-page proposal approved by supervising faculty member and chair. FALL, SPRING, SUMMER. [Variable credit: 1-3 each semester]

CE 200C. Directed Study. Continuation of CE 200B in the same or another area of civil and environmental engineering. Prerequisite: CE 200B and one-page proposal approved by supervising faculty member and chair. FALL, SPRING, SUMMER. [Variable credit: 1-3 each semester]

CE 203. Fluid Mechanics. 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 203 and ME 224. Prerequisite: ME 190, MATH 198. Graduate credit for students in earth and environmental sciences. FALL, SUMMER. [3]

CE 204. Fluid Mechanics Laboratory. Team project-oriented course. Practical applications of fluid mechanics principles through laboratory exercises and field trips. Corequisite: CE 203. FALL. [1]

CE 205W. Civil and Environmental Engineering Laboratory. 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 203, CE 232, CE 240. SPRING. [2]

CE 225. Transportation Systems Engineering. The planning, design, and implementation of transportation systems. Particular emphasis is placed upon the design process, traffic engineering, urban transportation planning, and the analysis of current transportation issues. FALL. [3]

CE 226. Environmental Engineering. Introduction to the parameters affecting environmental quality, including air and water pollutants, and

treatment techniques to achieve drinking water quality or to permit safe discharge to the environment. Contaminant transport and interactions of contaminants with the environment. Governmental regulations covering air, water, solid and hazardous wastes. Overview of residuals management including hazardous and solid wastes and sludge handling, treatment, and disposal. Prerequisite: CHEM 102A, PHYS 116A-B, MATH 198. Corequisite: CE 203 or CHBE 230 or ME 224. FALL. [3]

CE 227. Water Resources Engineering. Introduction to 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: CHEM 102A, PHYS 116A-B, MATH 198, CE 203. SPRING. [3]

CE 232. Introduction to Structural Analysis. Analysis of statically determinate and indeterminate beams, trusses, and frames. Computer applications. Prerequisite: CE 182. FALL. [3]

CE 235. Introduction to Structural Design. Properties of steel and design philosophies. Load and resistance factor design of ties, struts, beams, beam-columns, and very simple connections using bolts and welds as fasteners based on AISC Specifications. Properties of reinforced concrete and design philosophy. Design of beams in flexure and shear, one-way slabs, T-beams, columns, development length, and serviceability based on ACI Codes of Practice. Prerequisite: CE 232. SPRING. [3]

CE 240. Geotechnical Engineering. 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 182 or consent of instructor. FALL. [3]

CE 248. Civil Engineering Design I. A meaningful, major engineering design course for civil engineering students. Includes a response to request(s) for proposals, project conception, project design, design analysis, and economic evaluation of alternatives for typical civil engineering projects within selected areas of professional depth. Includes consideration of safety, reliability, aesthetics, ethics, social and environmental impact, and government regulations. Prerequisite: CE 205W, senior standing, or consent of instructor. FALL. [1]

CE 249. Civil Engineering Design II. A continuation of CE 248. The course involves an oral presentation and the submission of a final design report. Prerequisite: CE 248. SPRING. [2]

CE 251. Foundation Analysis and Design. Study of shallow and deep foundation elements and systems for civil engineering structures. Soil exploration and site investigation. Prerequisite: CE 240 or equivalent. SPRING. [3]

CE 252. Civil and Environmental Engineering Seminar. A seminar designed to introduce students to current technical and professional issues through literature discussions, seminars by faculty and practicing engineers, and participation in panel discussions. Prerequisite: Senior or graduate standing or consent of instructor. FALL, SPRING. [1]

CE 255. Transportation System Design. Geometric analysis of transportation ways with particular emphasis on horizontal and vertical curve alignment. Design of highways, interchanges, intersections, and facilities for air, rail, and public transportation. Prerequisite: CE 225, junior standing. SPRING. [3]

CE 256. Urban Transportation Planning. 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. Computerized planning programs are used. Prerequisite: CE 225, junior standing. SPRING. [3]

CE 257. Traffic Engineering. Analysis of the characteristics of traffic, including the driver, vehicle, volumes, speeds, capacities, roadway conditions, and accidents. Traffic regulation, control, signing, signalization, and safety programs are also discussed. Prerequisite: CE 225. FALL. [3]

CE 259. Geographic Information Systems. 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]

CE 262. Intelligent Transportation Systems. 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]

CE 286. Construction Project Management. Introduction to the theory and application of the fundamentals of construction project management. The construction process and the roles of professionals in the process. Broad 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 274, CE 286 or EECE 295. Prerequisite: CE 235. FALL. [3]

CE 287. Construction Estimating. Fundamentals of construction estimating. Estimation of material, labor, and equipment quantities, including costing and pricing of projects. Application of estimating practices using real-world examples and project estimating software. Corequisite: CE 286. FALL. [3]

CE 288. Construction Planning and Scheduling. 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 286, CE 287. SPRING. [3]

CE 289. Advanced Construction Project Management. 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 286, senior standing. FALL. [3]

CE 290. Reliability and Risk Case Studies. Review of case studies involving successes and failures in managing reliability and risk assessment of engineering systems from a wide range of perspectives, including design, production, operations, organizational culture, human factors and exogenous events. Analysis of event consequences in terms of public health and safety, the environment and business continuity, and the implications on regulation, legal liability and business practices. Evaluation of 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 or consent of instructor. FALL. [3]

CE 291. Construction Materials and Methods. 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. Prerequisite: Senior standing. SUMMER. [3]

CE 292. Construction Law and Contracts. 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 286. SPRING. [3]

CE 293. Advanced Structural Steel Design. Advanced topics in column and beam design including local buckling, composite beams, plate girders, and torsion design. Behavior and design of bolted and welded connections. Structural planning and design of structural systems such as multistory buildings including computer applications. Prerequisite: CE 235. FALL. [3]

CE 294. Advanced Reinforced Concrete Design. 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. Introduction to prestressed concrete. Prerequisite: CE 235. SPRING. [3]

CE 295. Mechanics of Composite Materials. 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 182 and MSE 150. SPRING. [3]

CE 296. Building Information Modeling. 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. Prerequisite: Senior standing. FALL. [3]

CE 298. Building Systems and LEED. Design and construction of mechanical, electrical, plumbing, and telecommunications systems in buildings. Leadership in Energy and Environmental Design (LEED) green Building Rating System(TM) building approach to sustainability. Prerequisite: Senior standing. SPRING. [3]

CE 299. Special Topics. [3]

CE 301. Advanced Mechanics of Solids I. Stress and strain analysis: equilibrium, compatibility, and constitutive equations including linear elastic and thermo-elastic relations; transformations; octahedral and deviatoric stresses. Applications to the torsion of bars, stress concentrations, and semi-infinite medium problems. Euler-Bernoulli and Timoshenko beam theories. Energy and related methods including applications. Kirchoff's bending of rectangular and circular plates. Prerequisite: CE 182 or equivalent, MATH 198 or equivalent, MATH 194 or equivalent, or consent of instructor. FALL. [3]

CE 302. Advanced Mechanics of Solids II. Modes of failure: creep and relaxation, plastic flow, fracture and fatigue. Stability of members, frames, and plates. Membrane and bending analyses of shells, including the beam on elastic foundation analogy for cylindrical shells. Inelastic behavior and plasticity including frame, planar, axi-symmetric, and slip line problems. Prerequisite: CE 301 or consent of instructor. SPRING. [3]

CE 307. Finite Element Analysis. Discrete modeling of problems of the continua. Mathematical basis of finite element method-weighted residual and variational concepts. Finite element formulations-displacement, force, and mixed methods. One-D problems of the continua and finite element solution-Co and C1 elements, eigenvalue and transient problems. Error checks and control. Mapping, shape functions, numerical quadrature, and solution of equations. Finite element formulation of two-dimensional problems (single and multi-field)-mapping and shape functions, triangular and quad elements with straight or curved boundaries. Application problems in 1-D, 2-D and 3-D. Three-D elements, singular problems, and elements of buckling and nonlinear problems. Error estimation and quality control. Computer implementation. Commercial packages. Prerequisite: MATH 194 and MATH 226 or equivalent, or consent of instructor. FALL. [3]

CE 308. Advanced Computational Mechanics. Basics of nonlinear mechanics-geometric and material nonlinearities. Discrete Lagrangian, Eulerian and other formulations. Nonlinear material models. Numerical solution algorithms in space and time. Solution of nonlinear (second-order and higher) problems. Multi-disciplinary problems. Error estimation and adaptive model improvement. Introduction to multi-scale modeling and atomistic/continuum coupling. Prerequisite: CE 307 or equivalent. SPRING. [3]

CE 309. Structural Dynamics and Control. Analysis of single- and multi-degree-of-freedom systems. Modal superposition method. Time and frequency domain analyses. Numerical methods and nonlinear dynamic analysis. Application to structures subject to earthquake and impact forces. Elements of feedback control systems. Control of lumped parameter systems. Active, passive, and hybrid mass dampers. Application to simple building and bridge structures. SPRING. [3]

CE 310. Probabilistic Methods in Engineering Design. Applications of probabilistic methods in the analysis and synthesis of engineering systems. Review of basic probability concepts, random variables and distributions, modeling and quantification of uncertainty, testing the validity of assumed models, linear regression and correlation analyses, Monte Carlo simulation, reliability analysis and reliability-based design. Prerequisite: MATH 194. FALL. [3]

CE 311. Engineering Design Optimization. Methods for optimal design of engineering systems. Optimization under uncertainty, reliability-based design optimization, robust design, multidisciplinary problems, multi-objective optimization. Discrete and continuous design variables, advanced numerical algorithms, and formulations and strategies for computational efficiency. Practical applications and term projects in the student's area of interest. Prerequisite: MATH 287, MATH 288 or CE 310. [3]

CE 313. Advanced Reliability Methods. Computational methods for probabilistic analysis and design of modern engineering systems. Emphasis on system reliability, nonlinear reliability methods, Weibull analysis, Bayesian methods, response surface modeling and design of experiments, advanced simulation and variance reduction concepts, sensitivity analysis and reliability-based design optimization. Practical applications using existing software. Prerequisite: CE 310. SPRING. [3]

CE 317. Stability of Structures. Buckling analysis of perfect and imperfect columns, mathematical treatment of various stability criteria, dynamic and static instability, energy methods. Buckling of frames, trusses, beam-columns, rings, and tubes. [3]

CE 318. Prestressed Concrete. Behavior and design of statically determinate prestressed concrete structures under bending moment, shear, torsion, and axial load effects. Design of statically determinate prestressed structures such as continuous beams, frames, slabs and shells. Creep and shrinkage effects and deflections of prestressed concrete structures. Applications to the design and construction of bridges and buildings. Prerequisite: CE 235 or equivalent. [3]

CE 325A. Individual Study of Civil Engineering Problems. Literature review and analysis of special problems under faculty supervision. FALL, SPRING, SUMMER. [1-4 each semester]

CE 325B. Individual Study of Civil Engineering Problems. Literature review and analysis of special problems under faculty supervision. FALL, SPRING, SUMMER. [1-4 each semester]

CE 325C. Individual Study of Civil Engineering Problems. Literature review and analysis of special problems under faculty supervision. FALL, SPRING, SUMMER. [1-4 each semester]

CE 351. Public Transportation Systems. Comprehensive study of public transportation, with emphasis on planning, management, and operations; paratransit, ridesharing, and rural public transportation systems. Prerequisite: CE 256. SPRING. [3]

CE 353. Airport Planning and Design. Integration and application of the principles of airport master planning from the beginning stages of site selection through actual design of an airport facility. Specific study topics address demand forecasting, aircraft characteristics, capacity analyses, and geometric design of runways, terminals, and support facilities. Prerequisite: CE 225 or consent of instructor. [3]

CE 355. Advanced Transportation Design. An in-depth view of the design process. Complex design problems and solutions, with the use of computer-based analytical and design tools. Comprehensive design projects. Prerequisite: CE 255. SPRING. [3]

CE 356. Advanced Transportation Planning. A continuation of the concepts from CE 256, with emphasis on analytical techniques used in forecasting travel. Use of computer-based models, transportation and energy contingency planning methods. Prerequisite: CE 256. SPRING. [3]

CE 357. Theory of Traffic Flow. A study of traffic flow from the perspective of probability as applied to highway, intersection and weaving capacities. Discrete and continuous flow, vehicle distributions, queuing, and simulation. Prerequisite: CE 257. [3]

CE 359. Emerging Information Systems Applications. An introduction to emerging information systems technologies and their role in improving productivity and efficiency in managing engineering operations.

Design of integrated approaches to enhance the speed, accuracy, reliability, and quantity of information available for decision support. Emphasis on case studies of innovative applications in transportation and manufacturing, leading to individual and group projects requiring new product development. Prerequisite: background transportation or manufacturing operations or consent of instructor. FALL. [3]

CE 369. Master's Thesis Research.

CE 371A. Reliability and Risk Engineering Seminar. Seminars by expert speakers provide a wide range of perspectives on reliability and risk assessment and management of multi-disciplinary engineering systems. Topics on infrastructure and environmental systems, mechanical, automotive, and aerospace systems; network systems (power distribution, water and sewage systems, transportation etc.); manufacturing and construction; and electronic and software systems. FALL, SPRING. [1]

CE 371B. Reliability and Risk Engineering Seminar. Seminars by expert speakers provide a wide range of perspectives on reliability and risk assessment and management of multidisciplinary engineering systems. Topics on infrastructure and environmental systems; mechanical, automotive, and aerospace systems; network systems (power distribution, water and sewage systems, transportation, etc.); manufacturing and construction; and electronic and software systems. FALL, SPRING. [1]

CE 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special non-degree students. [Variable credit: 0-12]

CE 389. Master of Engineering Project.

CE 399. Ph.D. Dissertation Research.

Environmental Engineering

ENVE 220A. Sustainable Development. 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. Intended to be followed by ENVE 220B. SPRING. [3]

ENVE 220B. Sustainable Development Field Experience. Through lectures, research projects, and service-learning opportunities, students will reflect on themes from ENVE 220A and apply them to work in the field. Students will design and conduct quantitative-oriented research projects in collaboration with faculty mentors and international partners. Prerequisite: ENVE 220A. SUMMER. [1-3]

ENVE 220C. Sustainable Development Research. A quantitative, project- and research-based seminar drawing on student experiences and learning in ENVE 220A and ENVE 220B. Prerequisite: ENVE 220B. FALL. [3]

ENVE 252. Physical Hydrology. 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. Prerequisite: CE 203 or ME 224 or CHBE 230 or EES 255. FALL. [3]

ENVE 254. Energy and Water Resources. 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]

ENVE 260. Solid and Hazardous Waste Management. An introduction to solid municipal and hazardous waste management including generation, characterization, collection, treatment and disposal. Emphasis given to the legal requirements, risk assessment and management, costs and policy considerations including pollution prevention, recycling and substitution. SPRING. [3]

ENVE 262. Hydrology. 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 203, CE 227. FALL. [3]

ENVE 264. Environmental Assessments. 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 or consent of instructor. FALL. [3]

ENVE 270. Environmental Thermodynamics, Kinetics, and Mass Transfer. Examination of fundamental environmental processes and phenomena which provide the analytical tools necessary to solve a broad range of environmental problems. These tools include equilibrium phenomena, process rate and mass transport phenomena. Prerequisite: CHEM 102A-B, MATH 198, CE 226 or equivalent, and senior standing or consent of instructor. SPRING. [3]

ENVE 271. Environmental Chemistry. Theoretical aspects of physical, organic, and inorganic chemistry applied to environmental engineering. Estimation of chemical parameters based on thermodynamic and structural activity relationships, kinetics of chemical reactions, equilibrium processes in the environment, including the carbonate system, metal complexation and precipitation. Prerequisite: CHEM 102A-B and senior standing or consent of instructor. FALL. [3]

ENVE 272. Biological Unit Processes. 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. Prerequisite: Senior standing or above. SPRING. [3]

ENVE 273. Environmental Characterization and Analysis. Introduction to the 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 is gained in combination with demonstrations featuring state-of-the-art analytical instrumentation. Prerequisite: Junior standing, CE 226, ENVE 271, or consent of instructor. SPRING. [3]

ENVE 274. Surface Water Quality Modeling. 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 270 or equivalent. SPRING. [3]

ENVE 276. Groundwater Hydrology. 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 198, CE 203. SPRING. [3]

ENVE 277. Physical/Chemical Unit Processes. Principles of mass transfer, chemistry, and chemical reactor technology applied to the design and operation of water and wastewater treatment processes. Unit processes such as coagulation/flocculation, sedimentation, filtration, carbon adsorption, ion exchange, air stripping, precipitation, chemical oxidation and chemical reduction will be evaluated as alternatives for the treatment of drinking water and industrial wastewaters. Prerequisite: CE 226 or equivalent and senior standing or above. SPRING. [3]

ENVE 285. Introduction to Nuclear Environmental Engineering. 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]

ENVE 296. Safety, Security and Environmental Risk Management. Development of safety and security programs 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 or consent of instructor. SPRING. [3]

ENVE 312. Pollutant Transport in the Environment. An introduction to the mathematical foundations of fluid mechanics and transport of pollutants in the environment. Fundamental conservation of mass, momentum, and energy equations will be developed. Appropriate initial and boundary conditions and solution techniques will be discussed for a number of applications. Prerequisite: CE 203, MATH 198. FALL. [3]

ENVE 325A. Individual Study. Literature review and analysis, or laboratory investigation of special problems under faculty supervision. FALL, SPRING, SUMMER. [Variable credit: 1-4 each semester]

ENVE 325B. Individual Study. Literature review and analysis, or laboratory investigation of special problems under faculty supervision. FALL, SPRING, SUMMER. [Variable credit: 1-4 each semester]

ENVE 325C. Individual Study. Literature review and analysis, or laboratory investigation of special problems under faculty supervision. FALL, SPRING, SUMMER. [Variable credit: 1-4 each semester]

ENVE 330. Nuclear Facilities Life Cycle Engineering. The life cycle (including siting, licensing, construction, operations and decommissioning) of the nuclear facilities that comprise the nuclear fuel cycle—from mining uranium ore through the potential recycling of used nuclear fuel. SPRING. [3]

ENVE 331. Nuclear Chemistry and Processes. Chemistry and chemical processing of the actinides and important fission products and by-products. Development of nuclear chemical engineering processes for these materials. SPRING. [3]

ENVE 332. Storage, Treatment and Disposal of Radioactive Waste. Evolution of current domestic and international approaches, including waste forms, classification, storage and disposal locations, and environmental and safety assessments. FALL. [3]

ENVE 333. Nuclear Process Safety. Approaches for evaluating the safety of nuclear radiochemical processing systems. Safety analysis practices from the chemical industry, the nuclear power community, and the United States nuclear weapons complex, and other quantitative and qualitative risk assessment methods. FALL. [3]

ENVE 334. Nuclear Environmental Regulation, Law and Practice. Environmental laws and regulations governing radionuclides and radioactive waste, including those concerning hazardous chemicals and wastes and those impacting commercial nuclear fuel cycle facilities and former nuclear weapons and materials sites. Interplay between regulatory agencies such as the US Nuclear Regulatory Commission, the US Environmental Protection Agency, and the states. Self-regulation of activities by the U.S. Department of Energy. SUMMER. [3]

ENVE 369. Master's Thesis Research.

ENVE 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special non-degree students. [Variable credit: 0-12]

ENVE 389. Master of Engineering Project.

ENVE 399. Ph.D. Dissertation Research.

Computer Science

CS 101. Programming and Problem Solving. 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. FALL, SPRING. [3]

CS 103. Introductory Programming for Engineers and Scientists. An introduction to 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. Generic programming concepts. FALL, SPRING. [3]

CS 151. Computers and Ethics. 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]

CS 201. Program Design and Data Structures. Continuation of CS 101. 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 101. FALL, SPRING. [3]

CS 204. Program Design and Data Structures for Scientific Computing. Data Structures and their associated algorithms in application to computational problems in science and engineering. Time and memory complexity; dynamic memory structures; sorting and searching; advanced programming and program-solving strategies; efficient software library use. Prerequisite: CS 101 or 103. SPRING. [3]

CS 212. Discrete Structures. A broad survey of the mathematical tools necessary for an understanding of computer science. Topics covered include an introduction to 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]

CS 231. Computer Organization. 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, I/O handling, and assembler concepts. Graduate credit not given for computer science majors. Prerequisite: CS 201; corequisite: EECE 116/116L. FALL, SPRING. [3]

CS 240A. Undergraduate Research. Open to qualified majors with consent of instructor and adviser. No more than 6 hours may be counted towards the computer science major. Prerequisite: CS 231. FALL, SPRING. [Variable credit: 1-3 each semester, not to exceed a total of 6]

CS 240B. Undergraduate Research. Open to qualified majors with consent of instructor and adviser. No more than 6 hours may be counted towards the computer science major. Prerequisite: CS 231. FALL, SPRING. [Variable credit: 1-3 each semester, not to exceed a total of 6]

CS 242. Special Topics in Computer Science. [Variable credit: 1-3]

CS 250. Algorithms. 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 201, CS 212. FALL, SPRING. [3]

CS 251. Intermediate Software Design. 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 201. FALL, SPRING. [3]

CS 252. Theory of Automata, Formal Languages, and Computation. Finite-state machines and regular expressions. Context-free grammars and languages. Pushdown automata. Turing machines. Undecideability. The Chomsky hierarchy. Computational complexity. Prerequisite: CS 212. SPRING. [3]

CS 258. Introduction to Computer Graphics. Featuring 2D rendering and image-based techniques, 2D and 3D transformations, modeling, 3D rendering, graphics pipeline, ray-tracing, and texture-mapping. Prerequisite: MATH 194, 196, 204 or 205B; CS 251. FALL. [3]

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CS 259. Introduction to Computer Animation. Introduction to the principles and techniques of computer animation. Students work in small groups on the design, modeling, animation, and rendering of a small animation project. Topics include storyboarding, camera control, skeletons, inverse kinematics, splines, keyframing, motion capture, dynamic simulation, particle systems, facial animation, and motion perception. Prerequisite: CS 201, Linear Algebra. SPRING. [3]

CS 260. Artificial Intelligence. Introduction to the 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 250 and CS 270 or consent of instructor. FALL. [3]

CS 265. Introduction to Database Management Systems. Logical and physical organization of databases. Data models and query languages, with emphasis on the relational model and its semantics. Concepts of data independence, security, integrity, concurrency. Prerequisite: CS 201. FALL. [3]

CS 269. Project in Artificial Intelligence. 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 260 or consent of instructor. SPRING. [3]

CS 270. Programming Languages. 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. Non-standard languages, problem-solving assignments in a laboratory environment. Prerequisite: CS 231. FALL, SPRING. [3]

CS 274. Modeling and Simulation. 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 201, junior standing. SPRING. [3]

CS 276. Compiler Construction. 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 231. FALL. [3]

CS 278. Principles of Software Engineering. 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 251. FALL. [3]

CS 279. Software Engineering Project. 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 278. SPRING. [3]

CS 281. Principles of Operating Systems I. 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: CS 231, CS 251. FALL, SPRING. [3]

CS 282. Principles of Operating Systems II. 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. Introduction to operating system performance measurement, for both efficiency and logical correctness. Two hours lecture and one hour laboratory. Prerequisite: CS 281. SPRING. [3]

CS 283. Computer Networks. 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. Prerequisite: CS 281 or EECE 276. [3]

CS 284. Computer Systems Analysis. 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 281. SPRING. [3]

CS 285. Network Security. 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 283. FALL. [3]

CS 291. Special Topics. [Variable credit: 1-3 each semester] (Offered on demand)

CS 292. Special Topics. [Variable credit: 1-3 each semester] (Offered on demand)

CS 310. Design and Analysis of Algorithms. Set manipulation techniques, divide-and-conquer methods, the greedy method, dynamic programming, algorithms on graphs, backtracking, branch-and-bound, lower bound theory, NP-hard and NP-complete problems, approximation algorithms. Prerequisite: CS 250. SPRING. [3]

CS 311. Graph Algorithms. Algorithms for dealing with special classes of graphs. Particular emphasis is given to subclasses of perfect graphs and graphs that can be stored in a small amount of space. Interval, chordal, permutation, comparability, and circular-arc graphs; graph decomposition. Prerequisite: CS 310 or MATH 275. [3]

CS 315. Automated Verification. Systems verification and validation, industrial case studies, propositional and predicate logic, syntax and semantics of computational tree and linear time logics, binary decision diagrams, timed automata model and real-time verification, hands on experience with model checking using the SMV, SPIN and UPPAAL tools, and state reduction techniques. FALL. [3]

CS 320. Algorithms for Parallel Computing. Design and analysis of parallel algorithms for sorting, searching, matrix processing, FFT, optimization, and other problems. Existing and proposed parallel architectures, including SIMD machines, MIMD machines, and VLSI systolic arrays. Prerequisite: CS 310 or consent of instructor. [3]

CS 350. Artificial Neural Networks. Theory and practice of parallel distributed processing methods using networks of neuron-like computational devices. Neurobiological inspirations, attractor networks, correlational and error-correction learning, regularization, unsupervised learning, reinforcement learning, Bayesian and information theoretic approaches, hardware support, and engineering applications. SPRING. [3]

CS 351. Advanced Animation. Current research issues and problems in computer animation, with special focus on motion capture, dynamic simulation, and key-framing. Cloth, deformable bodies, natural phenomena, geometric algorithms, procedural techniques, facial animation, hair, autonomous characters, flocking, empirical evaluation, and interfaces for animation. Prerequisite: CS 259 or consent of instructor. FALL. [3]

CS 352. Human-Computer Interaction. An overview of human computer interaction and problems of current interest. Topics include: Human

factors, GOMS, user interface design and evaluation, interaction modalities, distributed cognition, ubiquitous computing. A project involving design and evaluation will be performed. Prerequisite: Consent of instructor. FALL. [3]

CS 358. Computer Vision. The fundamentals of computer vision and techniques for image understanding and high-level image processing. Includes image segmentation, geometric structures, relational structures, motion, matching, inference, and vision systems. Prerequisite: EECE 357. SPRING. [3]

CS 359. Medical Image Registration. Foundations of medical image registration. Mathematical methods and practical applications. Image-to-image registration, image-to-physical registration, applications to image-guided procedures and the most commonly used imaging modalities with an emphasis on tomographic images. FALL. [3]

CS 360. Advanced Artificial Intelligence. Discussion of state-of-the-art and current research issues in heuristic search, knowledge representation, deduction, and reasoning. Related application areas include: planning systems, qualitative reasoning, cognitive models of human memory, user modeling in ICAI, reasoning with uncertainty, knowledge-based system design, and language comprehension. Prerequisite: CS 260 or equivalent. FALL. [3]

CS 362. Machine Learning. An introduction to machine learning principles of artificial intelligence, stressing learning's role in constraining search by augmenting and/or reorganizing memory. Topics include connectionist systems; concept learning from examples; operator, episode, and plan learning; problem-solving architectures that support learning; conceptual clustering; computer models of scientific discovery; explanation-based learning; and analogical reasoning. Psychological as well as computational interests in learning are encouraged. Prerequisite: CS 260, CS 360, or equivalent. SPRING. [3]

CS 364. Intelligent Learning Environments. Theories and concepts from computer science, artificial intelligence, cognitive science, and education that facilitate designing, building, and evaluating computer-based instructional systems. Development and substantiation of the concept, architecture, and implementation of intelligent learning environments. Multimedia and Web-based technology in teaching, learning, collaboration, and assessment. Prerequisite: CS 260, CS 360, or equivalent. SPRING. [3]

CS 366. Distributed Artificial Intelligence. Principles and practice of multiple agent systems for distributed artificial intelligence. Game theory, distributed negotiation and decision making, distributed problem solving, cooperation, coalition formation and distributed learning. Prerequisite: CS 260. SPRING. [3]

CS 369. Master's Thesis Research.

CS 375. Discrete-Event Systems: Supervisory Control and Diagnosis. Algebraic structures, automata and formal language theory, process modeling with finite-state automata, supervisory control theory, controllability and supervision, supervisory control under partial observation, modular and hierarchical supervisory control, supervisory control of real-time systems, fault diagnosis of discrete-event systems, and modular diagnosis approaches. SPRING. [3]

CS 376. Foundations of Hybrid and Embedded Systems. Modeling, analysis, and design of hybrid and embedded systems. Heterogeneous modeling and design of embedded systems using formal models of computation, modeling and simulation of hybrid systems, properties of hybrid systems, analysis methods based on abstractions, reachability, and verification of hybrid systems. FALL. [3]

CS 377. Topics in Embedded Software and Systems. Specification and composition of domain-specific modeling languages. Design methodologies for embedded systems. Platforms for embedded system design and implementation. Analysis of embedded systems. SPRING. [3]

CS 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special non-degree students. [Variable credit 0-12]

CS 381. Advanced Operating Systems Principles. Techniques for formally analyzing various issues in operating systems. Includes process synchronization, interprocess communication, deadlock, naming, memory management, objective capability-models, architectural support, protection, fault tolerance. Prerequisite: CS 281. FALL. [3]

CS 384. Performance Evaluation of Computer Systems. Techniques for computer systems modeling and analysis. Topics covered include analytical modeling with emphasis on queuing network models, efficient computational algorithms for exact and approximate solutions, parameter estimation and prediction, validation techniques, workload characterization, performance optimization, communication and distributed system modeling. Prerequisite: CS 281 or CS 381. SPRING. [3]

CS 385. Advanced Software Engineering. An intensive study of selected areas of software engineering. Topics may include CASE tools, formal methods, generative techniques, aspect-oriented programming, metrics, modeling, reuse, software architecture, testing, and open-source software. Prerequisite: CS 278. FALL. [3]

CS 386. System-Level Fault Diagnosis. An overview of the basic concepts of the theory of fault diagnosis and problems of current interest. Topics include the classical PMC and BGM models of fault diagnosis, hybrid (permanent and intermittent faults) models, diagnostic measures for one-step, sequential, and inexact diagnosis. Emphasis is on algorithmic techniques for solving the diagnosis and diagnosability problems in various models. Prerequisite: CS 381 or consent of instructor. SPRING. [3]

CS 387. Topics in Software Engineering. Topics may include empirical software engineering and open-source software engineering. Prerequisite: CS 278 or consent of instructor. SPRING. [3]

CS 388. Model-Integrated Computing. Model-Integrated Computing addresses the problems of designing, creating, and evolving information systems by providing rich, domain-specific modeling environments including model analysis and model-based program synthesis tools. Students are required to give a class presentation and prepare a project. FALL. [3]

CS 390. Individual Studies. Offered each term. [1-3]

CS 391. Seminar. [1-3 each semester]

CS 392. Seminar. [1-3 each semester]

CS 395. Special Topics. [3]

CS 396. Special Topics. [3]

CS 399. Ph.D. Dissertation Research.

Electrical Engineering

EECE 112. Circuits I. 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: Physics 116B; MATH 175. FALL, SPRING. [3]

EECE 116. Digital Logic. Numbering systems. Boolean algebra and combinational logic, graphical simplification, sequential logic, registers, and state machines. Corequisite: EECE116L. FALL, SPRING. [3]

EECE 116L. Digital Logic Laboratory. Laboratory for EECE 116. One three-hour laboratory per week. Corequisite: EECE 116. FALL, SPRING. [1]

EECE 203. Independent Study. Readings or projects on basic topics in electrical engineering or related fields under the supervision of the staff. Consent of instructor required. No more than 6 hours may be applied toward graduation. [Variable credit: 1-3 each semester]

EECE 204. Independent Study. Readings or projects on basic topics in electrical engineering or related fields under the supervision of the staff. Consent of instructor required. No more than 6 hours may be applied toward graduation. [Variable credit: 1-3 each semester]

EECE 213. Circuits II. Steady-state and transient analysis of electrical networks with emphasis on Laplace transform methods and pole-zero

concepts. Prerequisite: EECE 112, Physics 116b. Corequisite: EECE 213L, MATH 196. FALL, SPRING. [3]

EECE 213L. Circuits II Laboratory. Laboratory for EECE 213. One three-hour laboratory per week. Corequisite: EECE 213. FALL, SPRING. [1]

EECE 214. Signals and Systems. 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: EECE 112. FALL, SPRING. [3]

EECE 218. Microcontrollers. 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 8-bit microprocessors, control algorithms, and networking with microcontrollers. Graduate credit only for non-majors. Prerequisite: EECE 116; CS 101 or CS 103. Corequisite: EECE 218L. SPRING. [3]

EECE 218L. Microcontrollers Laboratory. Laboratory for EECE 218. A small structured project is required. One three-hour laboratory per week. Graduate credit only for non-majors. Corequisite: EECE 218. SPRING. [1]

EECE 233. Electromagnetics. Introduction to electromagnetic field theory. Maxwell's equations are developed from the historical approach. Electromagnetic waves are discussed with regard to various media and boundary conditions. Graduate credit only for non-majors. Prerequisite: Physics 116B. Corequisite: MATH 196. FALL. [3]

EECE 235. Electronics I. Introduction to 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. Graduate credit only for non-majors. Prerequisite: EECE 112. Corequisite: EECE 235L. FALL. [3]

EECE 235L. Electronics I Laboratory. Laboratory for EECE 235. One three-hour laboratory per week. Corequisite: EECE 235. FALL. [1]

EECE 252. Signal Processing and Communications. AM and FM modulation. Also, advanced topics in signal processing are treated. Prerequisite: EECE 214. SPRING. [3]

EECE 253. Image Processing. The theory of signals and systems is extended to two dimensions. Coverage includes filtering, 2-D FFTs, edge detection, and image enhancement. Three lectures and one laboratory period. FALL. [4]

EECE 254. Computer Vision. Vision is presented as a computational problem. Coverage includes theories of vision, inverse optics, image representation, and solutions to ill-posed problems. Prerequisite: EECE 253. SPRING. [3]

EECE 256. Digital Signal Processing. Applications of Digital Signal Processing (DSP) chips to sampling, digital filtering, FFTs, etc. Three lectures and one laboratory period. Prerequisite: EECE 214. SPRING. [4]

EECE 257. Control Systems I. Introduction to the theory and design of feedback control systems, steady-state and transient analysis, stability considerations. Model representation. State-variable models. Prerequisite: EECE 213 or EECE 214. FALL. [3]

EECE 258. Control Systems II. Modern control design. Discrete-time analysis. Analysis and design of digital control systems. Introduction to nonlinear systems and optimum control systems. Fuzzy control systems. Two lectures and one laboratory. Prerequisite: EECE 257. SPRING. [3]

EECE 261. Mobile and Wireless Networks. Design, development, and applications of mobile applications and services. Topics include wireless technologies, smart phone programming, cloud computing services. Prerequisite: CS 201 or equivalent programming experience. [3]

EECE 267. Power System Analysis. Analysis of large transmission and distribution networks. Analysis of power lines, load flow, short circuit studies, economic operation, and stability are introduced. Prerequisite: EECE 213. FALL. [3]

EECE 275. Microelectronic Systems. 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: EECE 112, EECE 116. SPRING. [3]

EECE 276. Embedded Systems. Advanced course on the design and application of embedded microcontroller-based systems. Architecture and capabilities of advanced microcontrollers. Embedded system modeling, design, and implementation using real-time and event-driven techniques. A structured project is required. Prerequisite: EECE 218. Corequisite: EECE 276L. FALL. [3]

EECE 276L. Embedded Systems Laboratory. Laboratory for EECE 276. A team-oriented structured project is required. One three-hour laboratory per week. Corequisite: EECE 276. FALL. [1]

EECE 277. FPGA Design. 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: EECE 116. [3]

EECE 280. Electronics II. Integrated circuit analysis and design. High frequency operation of semiconductor devices. Frequency-response and feedback analysis of BJT and MOS analog amplifier circuits, multistage frequency-compensated amplifier design. Transient analysis of BJT and MOS digital circuit families. Digital-to-analog and analog-to-digital conversion circuits. Prerequisite: EECE 235. SPRING. [3]

EECE 283. Principles and Models of Semiconductor Devices. 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: EECE 235 or consent of instructor. SPRING. [3]

EECE 284. Integrated Circuit Technology and Fabrication. Introduction to monolithic integrated circuit technology. Understanding of basic semiconductor properties and processes that result in modern integrated circuit. Bipolar and MOSFET processes and structures. Elements of fabrication, design, layout, and applications as regards semiconductor microelectronic technologies. Prerequisite: EECE 235 or consent of instructor. SPRING. [3]

EECE 285. VLSI Design. 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: EECE 116, EECE 235 or consent of instructor. FALL. [3]

EECE 286. Audio Engineering. 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: EECE 213, EECE 235. SPRING. [3]

EECE 287. Engineering Reliability. Topics in engineering reliability with emphasis on electrical systems. Reliability concepts and models. Risk analysis. System examples. Prerequisite: Senior standing. FALL. [3]

EECE 288. Optoelectronics. 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: EECE 233 or equivalent. SPRING. [3]

EECE 291. Special Topics. [Variable credit: 1-3 each semester]

EECE 292. Special Topics. [Variable credit: 1-3 each semester]

EECE 295. Program and Project Management for EECE. 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 274, but preparatory to the EECE senior design project course, EECE 296. Not for graduate credit. Credit given for only one of ENGM 274, CE 286 or EECE 295. Prerequisite: Senior standing. Corequisite: EECE 297. FALL. [3]

EECE 296. Electrical and Computer Engineering Design. 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. Not for graduate credit. Prerequisite: EECE 295, at least one DE course, senior standing. SPRING. [3]

EECE 297. Senior Engineering Design Seminar. 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: EECE 295. FALL. [1]

EECE 301. Introduction to Solid-State Materials. The properties of charged particles under the influence of an electric field, quantum mechanics, particle statistics, fundamental particle transport, and band theory of solids will be studied. FALL. [3]

EECE 302. Electric and Magnetic Properties of Solids. A review of electromagnetic theory of solids using advanced mathematical and computational techniques. Dielectric, magnetic, and optical properties. Fundamental interactions of electromagnetic radiation and charged particles in solids. Prerequisite: EECE 301 or equivalent. SPRING. [3]

EECE 304. Radiation Effects and Reliability of Microelectronics. The space radiation environment and effects on electronics, including basic mechanisms of radiation effects and testing issues. Total dose, single-event, high-dose-rate, and displacement damage radiation effects. Effects of defects and impurities on MOS long-term reliability. SPRING. [3]

EECE 305. Topics in Applied Magnetics. Selected topics in magnetism, magnetic properties of crystalline and non-crystalline materials; ferrite materials for electronics and microwave applications, resonance phenomena. Prerequisite: EECE 302 or consent of instructor. [3]

EECE 306. Solid-State Effects and Devices I. The semiconductor equations are examined and utilized to explain basic principles of operation of various state-of-the-art semiconductor devices including bipolar and MOSFET devices. FALL. [3]

EECE 307. Solid-State Effects and Devices II. The structure of solids, phonons, band theory, scattering phenomena, and theory of insulators. [3]

EECE 311. Systems Theory. Analysis and design of multivariable control systems using state space methods. Stability, controllability, and observability treated. Controllers designed using pole placement, optimal linear regulator, and the method of decoupling. State reconstruction via observers. SPRING. [3]

EECE 341. Advanced Analog Electronics. Analysis and design of analog electronics circuits with emphasis on integrated circuits. Topics include operational amplifiers, wideband amplifiers, multipliers, and phaselocked loops. FALL. [3]

EECE 342. Advanced Digital Electronics. Analysis and design of digital electronic circuits with emphasis on integrated circuits. Topics include logic families, semiconductor memories, and the analog-digital interface. SPRING. [3]

EECE 343. Digital Systems Architecture. Architectural descriptions of various CPU designs, storage systems, IO systems, parallel and von Neumann processors and interconnection networks will be studied. [3]

EECE 354. Advanced Real-Time Systems. Fundamental problems in real-time systems, with focus on modeling, analysis, and design. Topics include: scheduling theory and techniques, time synchronization, time- and event-triggered systems, distributed architectures, advanced programming languages for real-time systems. Literature reviews and projects. SPRING. [3]

EECE 356. Intelligent Systems and Robotics. Concepts of intelligent systems, AI robotics, and machine intelligence, using research books and papers. Emphasis on how AI, brain research, soft computing, and simulations are advancing robotics. Class projects. SPRING. [3]

EECE 357. Advanced Image Processing. Techniques of image processing. Topics include image formation, digitization, linear shift-invariant processing, feature detection, and motion. Prerequisite: MATH 175; programming experience. FALL. [3]

EECE 361. Random Processes. An introduction to the concepts of random variables, functions of random variables and random processes. Study of the spectral properties of random processes and of the response of linear systems to random inputs. Introduction to linear mean square estimation. The emphasis is on engineering applications. FALL. [3]

EECE 362. Detection and Estimation Theory. Fundamental aspects of signal detection and estimation. Formulation of maximum likelihood, maximum aposteriori, and other criteria. Multidimensional probability theory, signal and noise problems, and Kalman filter structure are studied. SPRING. [3]

EECE 369. Master's Thesis Research.

EECE 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special non-degree students. [Variable credit 0-12]

EECE 389. Master of Engineering Project.

EECE 391. Seminar. [1]

EECE 392. Seminar. [1]

EECE 393. Advanced Seminar for Ph.D. Candidates. [1]

EECE 394. Advanced Seminar for Ph.D. Candidates. [1]

EECE 395. Special Topics. Based on research and current developments in electrical engineering of special interest to staff and students. [3]

EECE 396. Special Topics. Based on research and current developments in electrical engineering of special interest to staff and students. [3]

EECE 397. Independent Study. Readings and/or projects on advanced topics in electrical engineering under the supervision of the staff. Consent of instructor required. [Variable credit: 1-3 each semester]

EECE 399. Ph.D. Dissertation Research.

Engineering Management

ENGM 216. Engineering Economy. Economic evaluation and comparison of alternatives: interest, periodic payments, depreciation, criteria, and analytical procedures in investment decision-making, and cost-estimating. FALL, SPRING. [3]

ENGM 221. Technology Strategy. A study of the problems encountered by managers in the planning, organizing, and allocating of resources and in directing, and controlling technical activities. FALL, SPRING. [3]

ENGM 242. Technology Marketing. Marketing industrial and technologically-based products and services, marketing strategies, segmentation, distribution, and personal selling, from inception of a product to end use. Prerequisite: ENGM 221, junior standing. SPRING. [3]

ENGM 244. Applied Behavioral Science. Leadership styles, power team building, conflict resolution, management resolution, interviewing techniques. Prerequisite: sophomore standing. FALL, SPRING, SUMMER. [3]

ENGM 251. Finance and Accounting for Engineers. Finance and accounting topics are studied from the perspective of engineering professionals working in business organizations. Areas covered include time value of money, capital budgeting, capital formation, financial accounting and reporting, performance measurements, and working capital management. Prerequisite: Junior standing. FALL, SPRING, SUMMER. [3]

ENGM 253. Technology-Based Entrepreneurship. 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: ENGM 221, junior standing. FALL. [3]

ENGM 254. Operations and Supply Chain Management. 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: ENGM 221, junior standing. FALL. [3]

ENGM 264. Organizational Behavior. 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 244. [3]

ENGM 272. Enterprise Systems Design. Design of complex enterprise systems and processes including enterprise requirements analysis, process-mapping, modeling, performance measurement, benchmarking, solution development, and change management. Prerequisite: ENGM 221, junior standing. FALL, SPRING. [3]

ENGM 273. Systems Engineering. 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 221, junior standing. FALL, SPRING. [3]

ENGM 274. Program and Project Management. Project planning and charting. Methods for planning budgets, schedule control, motivational factors, and conflict resolution. Credit given for only one of ENGM 274, CE 286 or EECE 295. Prerequisite: Junior standing. FALL, SPRING. [3]

ENGM 275. Technology Assessment and Forecasting. Assess technological changes in social, political, economic, legal, and institutional environments. Intuitive thinking, exploratory techniques, trend exploration, normative techniques of relevance. Term project required. Prerequisite: Junior standing. SPRING. [3]

ENGM 289. Independent Study. Readings or projects on topics in engineering management under the supervision of the ENGM faculty. Consent of instructor required. FALL, SPRING. [1-3 each semester, not to exceed a total of 3].

ENGM 290. Independent Study. Readings or projects on topics in engineering management under the supervision of the ENGM faculty. Consent of instructor required. FALL, SPRING. [1-3 each semester, not to exceed a total of 3]

ENGM 291. Special Topics. [Variable credit 1-3 each semester]

ENGM 292. Special Topics. [Variable credit: 1-3 each semester]

ENGM 296. Engineering Management Capstone Project. 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 221, ENGM 244, ENGM 274, junior standing. SPRING. [3]

Engineering Science

ES 101. Engineering Freshman Seminar. [1]

ES 103. Preparatory Academics. To prepare students to enter an undergraduate engineering or science program. The content will vary from year to year and is usually offered in combination with other academic courses, English as a second language, and various PAVE programs. No credit toward a Vanderbilt degree. Prerequisite: Consent of instructor. SUMMER. [0]

ES 140A. Introduction to Engineering, Module1. 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]

ES 140B. Introduction to Engineering, Module 2. Continuation of ES 140A. ES 140A-C must be completed in one semester for full course credit. FALL. [1]

ES 140C. Introduction to Engineering, Module 3. Continuation of ES 140B. ES 140A-C must be completed in one semester for full course credit. FALL. [1]

ES 210W. Technical Communications. 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 will include writing and editing reports of various lengths, preparing and using visual aids, and presenting oral reports. Required of all EE, CmpE, and ES students. FALL, SPRING. [3]

ES 230. Ships Engineering Systems. 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]

ES 231. Navigation. 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]

ES 232. Ships Weapons Systems. 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]

ES 248. Undergraduate Research. Independent study under the direction of a faculty member with expertise in the area of study. FALL, SPRING. [1-3 each semester, not to exceed a total of 3]

ES 249. Undergraduate Research. Continuation of the research in ES 248 or research in another area of study. FALL, SPRING. [1-3 each semester, not to exceed a total of 3]

ES 290. Special Topics. 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]

Overseas Study Programs

FNTE 250. France—GA Tech Lorraine.

FNTE 252. Germany—Dresden.

FNTE 254. Mexico—Guadalajara.

FNTE 256. China—Hong Kong CUHK.

FNTE 258. Singapore—Natl. U. Singapore.

FNTE 260. Hungary—Budapest BUTE.

FNTE 262. Italy—Turin Poli di Torino.

FNTE 264. China—Hong Kong HKUST.

FNTE 299. Graduate Study. Place marker course for dual degree students.

Materials Science and Engineering

MSE 150. Materials Science I. 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. Three lectures and one laboratory. Corequisite: CHEM 102A. SPRING. [4]

MSE 150L. Materials Science Lab.

MSE 209B. Materials Science and Engineering Seminar. Involving individual experimental, analytical, or design projects. A written final report is required. FALL. [Variable credit 1-3]

MSE 209C. Materials Science and Engineering Undergraduate Research. Open to selected senior engineering students wanting to do independent research. A formal written report is required. SPRING. [3]

MSE 210A. Special Topics. 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)

MSE 210B. Special Topics. 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)

MSE 232. Strength and Structure of Engineering Materials. A laboratory supplement to Mechanics of Materials, CE 182. 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 182. FALL. [1]

MSE 250. Materials Science II. A study of engineering materials that includes microstructure and property characterization, materials selection, failure analysis, modern processing methods, and an introduction to nanostructured materials. Case studies and challenge based learning will be used to develop structure-processing concepts for the practice of materials science and engineering. Prerequisite: MSE 150. FALL. [3]

MSE 310. Atomic Arrangements in Solids. A basic understanding of the atomic arrangements observed in metals, ceramics, semiconductors, glasses, and polymers. Lattice geometry and crystal symmetry are discussed in detail and these concepts are used to describe important crystal structures. Nanocrystalline materials are also covered. An introduction to scattering theory and diffraction phenomena provides insight into the analytical methods used by materials scientists for structural characterization. FALL. [3]

MSE 343. Introduction to Electron Microscopy. Principles and applications of transmission electron microscopy in the study of materials. Electron scattering, image contrast theory, operation of electron microscope, and specimen preparation. Use of the electron microscope in experimental investigations. Two lectures and one laboratory period. Prerequisite: Consent of instructor. FALL. [3]

MSE 369. Master's Thesis Research.

MSE 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special nondegree students. [Variable credit: 0-12]

MSE 391. Special Topics. Based on faculty research projects and highly specialized areas of concentration. FALL, SPRING. [Variable credit: 1-3 each semester]

MSE 392. Special Topics. Based on faculty research projects and highly specialized areas of concentration. FALL, SPRING. [Variable credit: 1-3 each semester]

MSE 397. Seminar. A required noncredit course for all graduate students in the program. Topics of special interest consolidating the teachings of previous courses by considering topics which do not fit simply into a single course category. FALL, SPRING. [0] Staff.

MSE 398. Seminar. A required noncredit course for all graduate students in the program. Topics of special interest consolidating the teachings of previous courses by considering topics which do not fit simply into a single course category. FALL, SPRING. [0] Staff.

MSE 399. Ph.D. Dissertation Research.

Mechanical Engineering

ME 150. Automotive Components Seminar. 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. Discussion and in-class participation. [1]

ME 151. Laboratory in Machining. Introduction to machining and fabrication of metals and plastics. Fabrication, design, and manufacturability of parts or components. [1]

ME 152. Laboratory in Welding. Introduction to theory of welding processes and welding of metals. Design, fabrication, and manufacturability of parts or components using welding processes. [1]

ME 153. Computer Aided Design. Introduction to the use of computers for solid modeling of machine parts and assemblies. [1]

ME 160. Introduction to Mechanical Engineering Design. Design fundamentals, computer-aided design, machine fabrication techniques, technical drawing, team-based learning, and a comprehensive design project. Two lectures and one lab. Prerequisite: ES 140A-C. FALL. [3]

ME 171. Instrumentation Laboratory. Techniques associated with engineering measurements, curve fitting, presentation, and analysis of data. Corequisite: MATH 175. SPRING. [2]

ME 190. Dynamics. The principles of dynamics (kinematics and kinetics) of particles and rigid bodies. Mechanical vibrations. Introduction to continuous media. Prerequisite: CE 180, PHYS 116A. Corequisite: MATH 175. FALL, SPRING, SUMMER. [3]

ME 202. Machine Analysis and Design. Application of the principles of mechanics of materials to the analysis and synthesis of machine elements. Corequisite: CE 182. FALL. [3]

ME 204. Mechatronics. Design of analog and digital electromechanical sensors and actuators, signal and power electronics, and application of digital microcontrollers to mechatronic systems. Prerequisite: EECE 112; CS 101 or 103. SPRING. [3]

ME 209A. Mechanical Engineering Project. Under the direction of a faculty member, students conduct a research or design project culminating in an engineering report of the activities and findings. FALL, SPRING. [1]

ME 209B. Mechanical Engineering Project. Under the direction of a faculty member, students conduct a research or design project culminating in an engineering report of the activities and findings. FALL, SPRING. [2]

ME 209C. Mechanical Engineering Undergraduate Research. Under the direction of a faculty member, students conduct a research project. A formal, written report is required. FALL, SPRING. [3]

ME 210. Special Topics. Technical elective courses of special current interest. No more than six semester hours of this course may be credited to the student's record. Prerequisite: Consent of instructor. FALL, SPRING, SUMMER. [Variable credit: 1-3 each semester] (Offered on demand)

ME 213. Energetics Laboratory. Experimental methods in heat transfer, fluid mechanics, and thermodynamics as applied to energy conversion systems and their analyses. Prerequisite: Senior standing. FALL. [2]

ME 220. Thermodynamics. Application of the first and second laws to energy transformation processes and properties of technologically important materials. Prerequisite: PHYS 116A, MATH 175. FALL, SPRING, SUMMER. [3]

ME 221. Intermediate Thermodynamics. Application of principles of thermodynamics to vapor and gas cycles, mixtures, combustion, and compressible flow. Prerequisite: ME 220. Corequisite: MATH 198. [3]

ME 224. Fluid Mechanics. 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 190, MATH 198. Credit not awarded for both ME 224 and CE 203. FALL. [3]

ME 226. Introduction to Gas Dynamics. An introduction to the study of compressible flow from subsonic to supersonic flow regimes. Includes shock waves, expansion waves, shock tubes, and supersonic airfoils. Prerequisite: ME 224. [3]

ME 234. Systems Dynamics. 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 190, MATH 198. FALL. [4]

ME 236. Linear Control Theory. 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. Credit is given for only one of ME 236 or ME 336. Prerequisite: ME 234. FALL. [3]

ME 242. Design Synthesis. 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 202. FALL. [2]

ME 243. Engineering Design Projects. Each student participates in a major group design project. Lectures will cover case studies and topics of current interest in design. Prerequisite: ME 242. SPRING. [3]

ME 248. Heat Transfer. 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 220, ME 224. SPRING. [3]

ME 251. Modern Manufacturing Processes. Introduction to manufacturing science and processes. A quantitative approach dealing with metals, ceramics, polymers, composites, and nanofabrication and microfabrication technologies. Prerequisite: ME 202. Corequisite: ME 242. FALL. [3]

ME 259. Engineering Vibrations. 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 190, MATH 198. [3]

ME 260. Energy Conversion. 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 220, ME 224. [3]

ME 261. Basic Airplane Aerodynamics. 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 224. FALL. [3]

ME 262. Environmental Control. A study of heating and cooling systems, energy conservation techniques, use of solar energy and heat pumps. Prerequisite: ME 220. Corequisite: ME 248. [3]

ME 263. Computational Fluid Dynamics and Multiphysics Modeling. 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 224. SPRING. [3]

ME 264. Internal Combustion Engines. A study of the thermodynamics of spark ignition and compression ignition engines; gas turbines and jet propulsion. Prerequisite: ME 220. [3]

ME 265. Direct Energy Conversion. 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 220. [3]

ME 267. Aerospace Propulsion. 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 220, ME 224. SPRING. [3]

ME 271. Introduction to Robotics. History and application of robots. Robot configurations including mobile robots. Spatial descriptions and transformations of objects in three-dimensional space. Forward and inverse manipulator kinematics. Task and trajectory planning, simulation and off-line programming. Prerequisite: MATH 194. FALL. [3]

ME 275. Introduction to Finite Element Analysis. Development and solution of finite element equations for solid mechanics and heat transfer problems. Introduction to commercial finite element and pre- and post-processing software. Two lectures and one three-hour laboratory each week. Prerequisite: CE 182, MATH 198. [3]

ME 280. Advanced Dynamics of Mechanical Systems. 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 190, MATH 198. SPRING. [3]

ME 284. Modeling and Simulation of Dynamic Systems. 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 234. [3]

ME 297. Senior Engineering Design Seminar. 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 242. FALL. [1]

ME 320. Statistical Thermodynamics. Old and modern quantum theory, including H atom, rigid rotor, and harmonic oscillator. Atomic and molecular structure and spectra. Maxwell-Boltzmann statistical model for ideal, chemically reacting, electron, or photon gas. Introduction to Gibbs method. Prerequisite: ME 220. [3]

ME 323. Introduction to Micro/NanoElectroMechanical Systems. Fabrication techniques and mechanical behavior of modern MEMS/NEMS structures. Application of NEMS/MEMS devices to sensing and actuation. [3]

ME 326. Gas Dynamics. Study of compressible fluid flow from subsonic to supersonic regimes in confined regions and past bodies of revolutions. Includes heat transfer, frictional effects, and real gas behavior. Prerequisite: ME 224. [3]

ME 327. Energy Conversion Systems. An advanced study of energy conversion systems that include turbomachinery, positive displacement machinery, solar energy collection and combustion, with consideration for optimizing the systems. Prerequisite: Consent of instructor. [3]

ME 331. Robot Manipulators. Dynamics and control of robot manipulators. Includes material on Jacobian matrix relating velocities and static forces, linear and angular acceleration relationships, manipulator dynamics, manipulator mechanism design, linear and nonlinear control, and force control manipulators. Prerequisite: ME 271. [3]

ME 333. Topics in Stress Analysis. An investigation of thermal stress, transient stress, and temperatures in idealized structures; consideration of plasticity at elevated temperatures; and some aspects of vibratory stresses. Prerequisite: Consent of instructor. [3]

ME 336. Linear Control Theory. 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. Credit is given for only one of ME 236 or ME 336. Prerequisite: ME 234. [3]

ME 343. High-Performance Computing for Engineers. Introduction to high-performance computing. Engineering applications. Focus on high-speed cluster computing. Class project applying high-performance computing to various research topics. Prerequisite: Introductory programming class or consent of instructor. [3]

ME 348. Convection Heat Transfer. A wide range of topics in free and forced convection is discussed. Solutions are carried out using analytical, integral, and numerical methods. Internal and external flows are considered for both laminar and turbulent flow cases. Convection in high speed flow is also studied. Prerequisite: ME 248. [3]

ME 351. Adaptive Control. Introduction to adaptive control systems. Real-time parameter estimation methods. Self-tuning regulators. Model reference adaptive control. Adaptive control for nonlinear systems. A research project is required. Prerequisite: ME 336. [3].

ME 352. Non-linear Control Theory. Introduction to the concepts of nonlinear control theory. Topics include phase plane analysis, nonlinear transformations, Lyapunov stability, and controllability/observability calculations. A multidimensional geometric approach to these problems is emphasized. Prerequisite: MATH 194. [3]

ME 353. Design of Electromechanical Systems. Analog electronic design for purposes of controlling electromechanical systems, including electromechanical sensors and actuators, analog electronic design of filters, state-space and classical controllers, and transistor-based servoamplifiers and high voltage amplifiers. Significant laboratory component with design and fabrication circuits to control electromechanical systems. Implementation of digital controllers. Prerequisite: ME 234. [3]

ME 359. Advanced Engineering Vibrations. The development and application of Lagrange's equations to the theory of vibrations. Nonlinear systems and variable spring characteristics are analyzed by classical methods and by digital computer techniques. Applications to the design of high speed machines are emphasized. Prerequisite: ME 259; MATH 234, MATH 294. [3]

ME 363. Conduction and Radiation Heat Transfer. A comparative study of available methods for solution of single and multidimensional conduction heat transfer problems. Both steady and transient problems are considered. Mathematical and numerical methods are stressed. Radiant exchange between surfaces separated by non-participating media is studied. Numerical methods are developed and discussed for non-isothermal surfaces and combined radiation and conduction problems are solved. Prerequisite: ME 248. [3]

ME 365. Micro/Nano Energy Transport. Theoretical examination of energy transport by electrons and phonons and modeling of transport phenomena in crystalline solids at reduced length scales. Particle transport models and solution methods for energy carriers in the context of semiconductor electronics, direct energy conversion devices and nanostructure. [3]

ME 366. Combustion. Introduction to combustion processes. Topics include combustion thermodynamics, chemical kinetics, premixed flame theory, diffusion flame theory, ignition and detonation. Prerequisite: ME 221, ME 224. [3]

ME 369. Master's Thesis Research.

ME 379. Non-Candidate Research. Research prior to entry into candidacy (completion of qualifying examination) and for special non-degree students. [Variable credit 0-12]

ME 389. Master of Engineering Project.

ME 391. Special Topics. A course based on faculty research projects and highly specialized areas of concentration. [Variable credit: 1-3 each semester]

ME 392. Special Topics. A course based on faculty research projects and highly specialized areas of concentration. [Variable credit: 1-3 each semester]

ME 393. Independent Study. Readings and/or projects on advanced topics in mechanical engineering under the supervision of the faculty. Consent of instructor required. [Variable credit: 1-3 each semester]

ME 394. Independent Study. Readings and/or projects on advanced topics in mechanical engineering under the supervision of the faculty. Consent of instructor required. [Variable credit: 1-3 each semester]

ME 397. Seminar. [0]

ME 398. Seminar. [0]

ME 399. Ph.D. Dissertation Research.

Nanoscience and Nanotechnology

NANO 250. Materials Characterization Techniques in Nanoscale Engineering. Principles and applications of advanced materials characterization techniques used to characterize specimens and engineered structures at the nano/microscale. Topics include x-ray diffraction analysis, optical microscopy, electron microscopy, surface probe techniques, focused ion-beam instruments, Rutherford backscatter analysis and chemical microanalytical techniques, treated both qualitatively and quantitatively. Lectures alternate with laboratory on a weekly basis. Prerequisite: MATH 155B; CHEM 102B or MSE 150. FALL. [3]

Scientific Computing

SC 250. Scientific Computing Toolbox. 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 101 or 103; MATH 150A. Fall. [3]

SC 290. Special Topics in Scientific Computing. [1-3 each semester]

SC 291. Special Topics in Scientific Computing. [1-3 each semester]

SC 292. Special Topics in Scientific Computing. [1-3 each semester]

SC 293A. Directed Study in Scientific Computing. Participation in ongoing research projects 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 250. [1-3 each semester]

SC 293B. Directed Study in Scientific Computing. Participation in ongoing research projects 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 250. [1-3 each semester]

SC 293C. Directed Study in Scientific Computing. Participation in ongoing research projects 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 250. [1-3 each semester]

SC 295A. Independent Study in Scientific Computing. 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 250. [1-3 each semester]

SC 295B. Independent Study in Scientific Computing. 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 250. [1-3 each semester]

SC 295C. Independent Study in Scientific Computing. 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 250. [1-3 each semester]

School of Engineering

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STEPHEN H. WADLEY, M.A., Academic Counselor

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DOUGLAS E. ADAMS, Distinguished Professor of Civil and Environmental Engineering
JAMES A. CADZOW, Centennial Professor of Electrical Engineering, Emeritus
PETER T. CUMMINGS, John R. Hall Professor of Chemical Engineering
BENOIT M. DAWANT, Cornelius Vanderbilt Chair in Engineering
DANIEL M. FLEETWOOD, Olin H. Landreth Professor of Engineering
TOMLINSON FORT, Centennial Professor of Chemical Engineering, Emeritus
KENNETH F. GALLOWAY, Distinguished Professor of Engineering
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
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ROBERT W. HOUSE, Orrin Henry Ingram Distinguished Professor of Engineering Management, Emeritus
M. DOUGLAS LEVAN, J. Lawrence Wilson Professor of Engineering
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FRANK L. PARKER, Distinguished Professor of Environmental and Water Resources Engineering, Emeritus
PETER N. PINTAURO, H. Eugene McBrayer Professor of Chemical 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
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JOHN P. WIKSWO, JR., Gordon A. Cain University Professor; A. B. Learned Professor of Living State Physics

Department Chairs

TODD D. GIORGIO, Biomedical Engineering
G. KANE JENNINGS, Chemical and Biomolecular Engineering
DOUGLAS E. ADAMS, Civil and Environmental Engineering
DANIEL M. FLEETWOOD, Electrical Engineering and Computer Science
ROBERT W. PITZ, Mechanical Engineering

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EDWARD L. THACKSTON, Professor of Civil and Environmental Engineering, Emeritus
B.E. (Vanderbilt 1961); M.S. (Illinois 1963); Ph.D. (Vanderbilt 1966) [1965]

LORI A. TROXEL, Associate Professor of the Practice of Civil and Environmental Engineering
B.S. (Purdue 1984); M.S., Ph.D. (Vanderbilt 1990, 1994) [1995]

JUSTIN HARRIS TURNER, Assistant Professor of Otolaryngology; Assistant Professor of Biomedical Engineering
B.E. (Vanderbilt 1998); Ph.D., M.D. (Medical University of South Carolina 2006, 2006) [2012]

PIETRO VALDASTRI, Assistant Professor of Mechanical Engineering; Assistant Professor of Medicine
M.Sc. (Pisa [Italy] 2002); Ph.D. (Scuola Superiore Sant'Anna [Italy] 2006) [2011]

JASON G. VALENTINE, Assistant Professor of Mechanical Engineering; Assistant Professor of Electrical Engineering
B.S. (Purdue 2005); Ph.D. (California, Berkeley 2010) [2010]

HANS A. VAN DER SLOOT, Adjunct Professor of Civil and Environmental Engineering
B.S., M.Sc., Ph.D. (Amsterdam [Netherlands] 1969, 1971, 1976) [2011]

ANDREW J. VAN SCHAACK, Assistant Professor of Human and Organizational Development; Assistant Professor of the Practice of Engineering Management
B.S., Ph.D. (Utah State 2002, 2006) [2004]

JOHN R. VEILLETTE, Associate Professor of the Practice of Civil Engineering; Director of PAVE
B.S., M.S. (Connecticut 1980, 1982); Ph.D. (Vanderbilt 1987) [1987]

D. GREG WALKER, Associate Professor of Mechanical Engineering; Director of IGPMS
B.S., M.S. (Auburn 1990, 1993); Ph.D. (Virginia Polytechnic Institute 1997) [1999]

MATTHEW WALKER III, Associate Professor of the Practice of Biomedical Engineering
B.S. (Tennessee 1987); Ph.D. (Tulane 2000) [2011]

PEIYONG WANG, Adjoint Associate Professor of Mechanical Engineering
B.S. (Beijing University of Aeronautics and Astronautics [China] 1998); M.S. (Tsinghua [China] 2001); Ph.D. (Vanderbilt 2006) [2009]

TAYLOR G. WANG, Centennial Professor of Mechanical Engineering, Emeritus; Centennial Professor of Materials Science and Engineering, Emeritus; Professor of Applied Physics, Emeritus
B.S., M.S., Ph.D. (California, Los Angeles 1967, 1968, 1971) [1988]

ROBERT J. WEBSTER III, Assistant Professor of Mechanical Engineering; Assistant Professor of Electrical Engineering; Assistant Professor of Neurological Surgery; Assistant Professor of Otolaryngology
B.S. (Clemson 2002); M.S., Ph.D. (Johns Hopkins 2004, 2007) [2008]

JOSEPH A. WEHRMEYER, Adjoint Associate Professor of Mechanical Engineering
B.S., M.S. (Southern Illinois 1981, 1986); Ph.D. (Vanderbilt 1990) [1996]

SHARON M. WEISS, Associate Professor of Electrical Engineering
B.S., M.S., Ph.D. (Rochester 1999, 2001, 2005) [2005]

ROBERT A. WELLER, Professor of Electrical Engineering; Professor of Materials Science and Engineering
B.S. (Tennessee 1971); Ph.D. (California Institute of Technology 1978) [1987]

FRANCIS M. WELLS, Professor of Electrical Engineering, Emeritus
B.E., M.S., Ph.D. (Vanderbilt 1965, 1967, 1970) [1969]

JAMES J. WERT, George A. Sloan Professor of Metallurgy; Professor of Mechanical Engineering, Emeritus [1961]

EDWARD J. WHITE, Professor of Electrical Engineering, Emeritus
B.S. (Iowa State 1958); M.E.E., D.Sc. (Virginia 1962, 1966) [1987]

JOHN P. WIKSWO, JR., Gordon A. Cain University Professor; A. B. Learned Professor of Living State Physics; Professor of Biomedical Engineering; Professor of Molecular Physiology and Biophysics
B.A. (Virginia 1970); M.S., Ph.D. (Stanford 1973, 1975) [1977]

D. MITCHELL WILKES, Associate Professor of Electrical Engineering; Associate Professor of Computer Engineering
B.S. (Florida Atlantic 1981); M.S., Ph.D. (Georgia Institute of Technology 1984, 1987) [1987]

JOHN W. WILLIAMSON, Professor of Mechanical Engineering, Emeritus
B.S. (Oklahoma 1955); M.S., Ph.D. (Ohio State 1959, 1965) [1964]

THOMAS J. WITHROW, Assistant Professor of the Practice of Mechanical Engineering
S.B. (Harvard 2000); M.S.E., M.S.E., Ph.D. (Michigan 2001, 2002, 2005) [2005]

JAMES E. WITTIG, Associate Professor of Materials Science and Engineering
B.S., M.S., Ph.D. (Stanford 1978, 1980, 1985) [1987]

ARTHUR WITULSKI, Research Associate Professor of Electrical Engineering
B.S., M.S., Ph.D. (Colorado 1981, 1986, 1988) [2006]

RYSZARD J. WYCISK, Research Associate Professor of Chemical and Biomolecular Engineering
B.S., Ph.D. (Wroclaw [Poland] 1984, 1993) [2011]

RAYMOND G. WYMER, Adjunct Professor of Civil and Environmental Engineering
B.S. (Memphis State 1950); M.S., Ph.D. (Vanderbilt 1953, 1953) [2007]

YAQIONG XU, Assistant Professor of Electrical Engineering; Assistant Professor of Physics
B.S. (Wuhan [China] 1997); Ph.D. (Chinese Academy of Sciences, Beijing 2002); Ph.D. (Rice 2006) [2009]

YUAN XUE, Associate Professor of Computer Science; Associate Professor of Computer Engineering; Director of Undergraduate Studies, Computer Science
B.S. (Harbin Institute of Technology [China] 1998); M.S., Ph.D. (Illinois 2002, 2005) [2005]

THOMAS E. YANKEELOV, Ingram Associate Professor of Cancer Research; Associate Professor of Radiology and Radiological Sciences; Associate Professor of Cancer Biology; Associate Professor of Biomedical Engineering; Associate Professor of Physics
B.A. (Louisville 1996); M.A., M.S. (Indiana, Bloomington 1998, 2000); Ph.D. (Stony Brook 2003) [2005]

JAMEY D. YOUNG, Assistant Professor of Chemical and Biomolecular Engineering
B.S. (Kentucky, Lexington 1999); Ph.D. (Purdue 2005) [2008]

ENXIA ZHANG, Research Assistant Professor of Electrical Engineering
B.S., M.S. (Nanjing [China] 2000, 2003); Ph.D. (Shanghai Institute of Microsystem and Information Technology, CAS [China] 2006) [2008]

Peabody College

P

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 national leader among schools of education.

Peabody's mission is fourfold: to create knowledge, to prepare leaders, to support practitioners, and to engage with and strengthen communities at local, national, and international levels. The college's faculty and students constitute a vibrant intellectual community dealing with pressing questions and expanding knowledge about education, including special education; psychology, especially focused on families and children; the development of individuals and organizations; and education administration, leadership, and policy. Peabody seeks to educate highly skilled professionals who share a deep concern for the human condition.

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.

More than 1,800 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 National Council for the Accreditation of Teacher Education (NCATE). Counseling programs are accredited by the Council for the Accreditation of Counseling and Related Education Programs (CACREP).

Centers and Outreach Efforts

African American Mental Health Research Scientist (AAMHRS) Consortium

The AAMHRS Consortium represents a national effort on the part of experienced and committed social, behavioral, clinical, prevention/intervention, and medical mental health research scientists to increase the numbers of competitive grant applications African American research scientists submit to the National Institute of Mental Health (NIMH), advance the overall participation level of African American mental health researchers in NIMH initiatives and programs, foster the development of high-quality individual and collaborative mental health research on racial/ethnic minority populations, and build a supportive research network for emerging African American mental health research scientists.

Center for Community Studies

The Center for Community Studies is dedicated to strengthening human community. The multidisciplinary center is composed of psychologists, anthropologists, sociologists, and other social scientists with decades of experience in community development, community organizing, and community building. Center efforts include research, dissemination, outreach, and capacity-building components.

Center for Evaluation and Program Improvement (CEPI)

The Center for Evaluation and Program Improvement (CEPI) was established in 1986 as the Center for Mental Health Policy housed in the Vanderbilt Institute for Public Policy Studies. The center moved to Peabody in 2004. Originally focused on child, adolescent, and family mental health services research, in recent years the center has broadened its perspective to include program evaluation and program improvement in additional areas. While still maintaining an emphasis on mental health, the center currently has projects in the fields of health and education.

Classroom Organization and Management Program (COMP)

COMP's primary goal is to help teachers improve their overall instructional and behavioral management skills through planning, implementing, and maintaining effective classroom practices. The program also seeks to improve student task engagement and reduce inappropriate and disruptive behavior through well-planned academic tasks and activities.

Family-School Partnership Lab

The Family-School Partnership Lab is dedicated to the scientific investigation of the reciprocal relationships among families, schools, and children. Center investigators conduct empirical research to test the Hoover-Dempsey & Sandler model of parental involvement, while working to establish common ground among researchers studying parental involvement, generally.

IRIS Center

The IRIS Center for Training Enhancements was designed in response to a request from the U.S. Department of Education's Office of Special Education Programs. This national effort, serving college faculty working in pre-service preparation programs, aims to ensure that general education teachers, school administrators, school nurses, and school counselors are well prepared to work with students who have disabilities and with their families. IRIS is the nation's only faculty enhancement center established for this purpose.

National Center on Performance Incentives

The National Center on Performance Incentives (NCPI), a national research and development center, was established in 2006 by a $10 million, five-year grant from the U.S. Department of Education Institute of Education Sciences. NCPI

conducts randomized field trials and program evaluations to address one of the most contested questions in public education: Do financial incentives for teachers, administrators, and schools affect the quality of teaching and learning?

National Center on Scaling Up Effective Schools

The National Center on Scaling Up Effective Schools is a collaborative partnership of research universities, education support providers, and two large urban school districts to identify the essential programs, practices, processes, and policies that make some high schools particularly effective with low-income students, minority students, and English language learners. The center works with teachers and school district leaders to share these practices with less-effective schools.

Peabody Journal of Education

The *Peabody Journal of Education,* an interdisciplinary scholarly publication, fosters the development and dissemination of knowledge related to important questions of education and human development. The journal, in publication since 1923, is published quarterly and distributed across the United States and in twenty-five foreign countries.

Peabody Professional Institutes

Peabody Professional Institutes (PPI) provide short-term, intensive educational experiences for professional educators and administrators from across the nation and around the world. Each institute draws from social science disciplines and professional fields of study to inform the creation of a comprehensive, yet focused, curriculum. Designed with the same expectations for rigor and depth as Peabody College degree programs, PPI rest on the philosophy that good practice is best derived from and informed by a strong theoretical base.

Peabody Research Institute

The Peabody Research Institute (PRI) conducts research aimed at improving the effectiveness of programs for children, youth, and families. This mission encompasses educational programs, but also other interventions aimed at increasing the well-being of children and their families. Research may address any aspect of relevant practices, programs, or policies—e.g., their effectiveness, implementation, costs, dissemination, or social/political support—but the emphasis is on evaluating their effects on the children and families they serve. To bridge between research and practice, PRI also provides technical assistance and consultation to programs, practitioners, and policy makers aimed at improving services for children and families.

Principals Leadership Academy of Nashville

The Principals Leadership Academy of Nashville is a joint undertaking of Peabody, the Nashville Public Education Foundation, and Metropolitan Nashville Public Schools. The academy develops educational leaders for the Nashville school system who are creative and courageous professionals capable of encouraging the best practices in teaching and learning.

Study of Mathematically Precocious Youth

The Study of Mathematically Precocious Youth (SMPY) is a fifty-year longitudinal study of five cohorts, consisting of more than 5,000 intellectually talented individuals, identified over a twenty-five-year period (1972–1997). The aim of this research is to develop a better understanding of the unique needs of intellectually precocious youth and the determinants of the contrasting developmental trajectories they display over the lifespan.

Susan Gray School for Children

The Susan Gray School for Children is an inclusive early childhood education program serving young children with and without disabilities, on site and in the community. The mission of the Susan Gray School is to provide high-quality services to children, families, and the community; to help train university students who plan to be teachers, health care providers, therapists, and researchers; to facilitate research; and to demonstrate high-quality early childhood education and special education practices.

Vanderbilt Kennedy Center for Research on Human Development

The Vanderbilt Kennedy Center is one of fourteen national centers for research on mental retardation and related aspects of human development. Its primary mission is to better understand human development, to prevent and solve developmental problems, and to enable persons with developmental disabilities to lead fuller lives. The Kennedy Center is a university-wide center with institutional support shared by Peabody College, the School of Medicine, and the College of Arts and Science.

Vanderbilt Programs for Talented Youth

Vanderbilt University's Programs for Talented Youth seeks to identify and aid academically talented youth from diverse educational, racial, and economic backgrounds by providing academic enrichment and challenge, while fostering balance and healthfulness in their lives. Begun in 2000 as a summer residential academic program, Programs for Talented Youth has expanded its mission and programming to provide engaging and intellectually appropriate educational opportunities to precocious young students, and to offer support for parents and educators year-round.

The Undergraduate Program

PEABODY College offers the bachelor of science with majors in early childhood education, 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. 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. The study of growth and development of individuals.

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 the current program descriptions that follow and in Peabody's *Undergraduate Handbook*.

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. The use of transfer courses to satisfy Liberal Education Core requirements must be approved by the Dean's Office. 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

PEABODY offers programs leading to teacher licensure in the following areas: *early childhood (grades PreK–3), elementary (grades K–6), and secondary education (grades 7–12) 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–modified (LD, BD for grades K–12), comprehensive (multiple/severe for grades K–12), or visual impairment (grades PreK–12). All three of these programs 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, Blair School of Music, or the School of Engineering. There is a special physics endorsement program available to engineering science students. 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 licensure through the Office of Teacher Licensure located in the Peabody Administration Building. Each state has its own application forms and procedures for licensure; information is available in the Office of 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* available in the Office of Records and Registration in the Peabody Administration Building. The licensure website *(peabody.vanderbilt.edu/admin-offices/teacher-licensure/index.php)* provides additional information.

Security Clearance

During the first two weeks of enrollment in a teacher preparation program, a student must pay a $42 fee and be fingerprinted in Tennessee by L-1 Identity Solutions for a criminal background check by the Tennessee Bureau of Investigation and the Federal Bureau of Investigation. The student must register online to pay the fee and to specify that the clearance report will be sent to the following Vanderbilt ID code: ORI TNCC19116. After background clearance, the student must sign a Background Clearance Consent Form to notify the Peabody background clearance officer if an infraction occurs at any time during enrollment in the program. Contact the Office of Background Clearance at Peabody or visit *peabody.vanderbilt.edu/admin-offices/bco/index.php* for additional 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 Records and Registration.

SCREENING

There are two points in each teacher education program when undergraduates must complete applications for screenings by departmental faculty. Screening reviews, described below, are important checkpoints that allow successful students to advance in the program. Attainment of 2.5 (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.)

   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.
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 the first semester of their junior year. Screening II must be done in the fall of the senior year, restricting undergraduate student teaching in special education and secondary education to the spring of the senior year.* Deadlines are firm; late applications will not be accepted. The Screening I and II application form is online at *peabody.vanderbilt.edu/admin-offices/teacher-licensure/licensure_for_undergraduate_students/screening.php* and 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 II applications for student teaching in Early Childhood or Elementary Education may be submitted in the second semester of the junior year for fall student teaching.

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 1020 or ACT 22 OR passing scores on the Praxis I Pre-Professional Skills Tests)
2. Minimum cumulative grade point average of 2.5 (4-point scale)
3. Successful completion of at least two of the required professional education courses as defined by the program area
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. Special education majors and secondary education majors must submit the online Screening II application in the fall of the senior year. For elementary majors and early childhood majors in the Department of Teaching and Learning, the student must submit the online Screening II application the semester prior to the one during which a student is to student teach. Secondary education majors may student teach in spring semesters only, so they must apply for Screening II in the fall semester of their senior year. Deadlines are October 1 for fall semesters, February 1 for spring semesters. 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. Second semester junior standing (for student teaching in the fall of the senior year) or first semester senior standing (for student teaching in the spring of the senior year)
3. Successful completion of all courses required and prerequisite to student teaching as defined by the program area
4. Minimum cumulative grade point average of 2.5 (4.0 scale)
5. Satisfactory performance (*C* or above) in coursework in areas in which teacher licensure is sought
6. Successful completion of Standard First Aid and CPR training (submit certificate copies to the Office of Teacher Licensure at the time of 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. Students

seeking early childhood or elementary licensure may apply for fall or spring student teaching. Secondary education and special education 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 2.5, 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 licensure through the Office of Teacher Licensure located in the Peabody Administration Building. Each state has its own application forms and procedures for licensure; information is available in the Office of Teacher Licensure.

Currently, the federal No Child Left Behind Act (NCLB), which became effective in 2002, requires states to enforce their federally approved plan which details strategies teachers may use to qualify for "highly qualified" status, one of the key elements in the No Child Left Behind Act. In Tennessee and some other states, eligibility for a state teaching license is not compromised by NCLB; however, in some other states, NCLB dictates are being incorporated into state licensing policies. At the time of publication of this catalog, there is no authoritative resource to provide such information for all states; in fact, states are still developing and revising their plans. Vanderbilt teacher education students are apprised of the issues addressed by NCLB in Tennessee; however, how other states interpret NCLB in terms of licensing and/or employability cannot be determined at this time. Federal regulations specify that once a teacher is documented as Highly Qualified in a state, other states are to honor that status. Students are advised to research state policies regarding NCLB in states where they will be seeking a teaching license and teaching position. The Office of Teacher Licensure will provide additional information when it becomes available.

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 (2.500 on a 4.000 scale).
2. For Tennessee licensure, achieving the state minimum score on all required parts of the PRAXIS II Series (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 *peabody.vanderbilt.edu/admin-offices/teacher-licensure/index.php* before registering to take the exams.

Accreditation

Vanderbilt is accredited by the National Council for Accreditation of Teacher Education (NCATE) 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)
National Association for the Education of Young Children (NAEYC)
Association for Childhood Education International (ACEI)
Council for the Accreditation of Counseling and Related Education Programs (CACREP)
National Association for Schools of Music (NASM)

Academic Regulations

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. This adviser is generally a faculty member in the major department and is knowledgeable about the courses the student will need to complete his or her major. 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

During the fall and spring semesters, a student must take at least 12 hours of course work to qualify as a full-time undergraduate student. Students wishing to carry more than 18 hours must obtain the approval of the Dean's Office. 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 Dean. The academic standing of such students will be considered on an individual basis.

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 Registrar's Office 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 30 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 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 regular rate, with no additional fee.

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. Human and organizational development majors do not need the SAT II mathematics test. The following application of these scores will be made to the Peabody Liberal Education Core:

Writing Requirement:

All Peabody College freshmen who have not earned a combined score of 1220 on the writing and critical reading components of the SAT I with a minimum score of 500 in each component, or ACT English test score of 27 or above and a minimum writing score of 7 or above, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation, all students must successfully complete a second writing course at the 100 or 200 level.

First-year seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters.

Mathematics:

Students with first majors in early childhood, 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 300- and 3000-level Courses

All students wishing to take 300- and 3000-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 Records and Registration. Undergraduates wishing to receive approval for graduate credit in 300- and 3000-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 200- and 300-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 Records and Registration.
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 Office of Records and Registration 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 one 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 experience.
3. Students may enroll for up to 3 hours of independent study in one semester.
4. Students must make a written 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 Administration and Records. 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 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. The Peabody Office of Records and Registration, in consultation with other appropriate academic units, will evaluate the course work to determine which credits 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 at another college and transfer up to 12 hours to Vanderbilt must be in good standing with at least a *C* average. Prior approval from the Office of Records and Registration must be granted for all courses to be taken elsewhere. Non-education students will not be permitted to take courses elsewhere to meet the basic 40-hour Liberal Education Core requirements. Course work transferred to Vanderbilt from another institution will not carry with it a grade point average.

Students who wish to participate in a non-Vanderbilt overseas program in a city where no Vanderbilt program is offered should complete the appropriate transfer of credit forms and apply for a leave of absence for the relevant

semester. To qualify for such a leave, a student must be in good standing 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 up to 15 hours of credit to be taken in the other program if the credit is to be transferred to Vanderbilt. Petitions for leaves of this type must be filed at least one month before the close of the preceding semester. The credit hours earned in other programs cannot be used by non-education students to satisfy Liberal Education Core requirements. Final approval of leaves of absence always rests with the Dean's Office.

Declaration of Major

Peabody students declare a major as part of the application process prior to admission. Changes in the major (if within Peabody) may be made after the first semester. 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, special education, and human and organizational development will be required to declare their area of specialization or track.

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
MI: missed final examination with additional incomplete requirements

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 from the Peabody Registrar's Office, 216 Peabody Administration Building. No permanent record is kept of the audit. Regular students may audit one class each semester free of charge.

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.

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

1. A Liberal Education Core course specifically designated for the major (e.g., Econ 100 for human and organizational development majors, or American history for education majors);
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;
5. A course from a required professional core.

Students taking a course on a P/F basis must be enrolled for at least 12 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.

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 register for a course on a P/F basis through YES (Your Enrollment Services, *yes.vanderbilt.edu*) or on a Pass/Fail Declaration form available in 216 Peabody Administration Building during a registration appointment window or during open enrollment. After the first week of classes, students may change from a P/F basis to a regularly graded basis—but not from a regularly graded basis to a P/F basis—until the end of the eighth week of classes. These deadlines are published in the

calendar. 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.

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 with a specified deadline by which they will be replaced with a permanent grade. A student who receives a temporary grade is ineligible for the Dean's List.

I: Incomplete

An Incomplete is given only under extenuating circumstances and only when a significant body of satisfactory work has been completed in a course. The *I* is not intended as a replacement for a failing grade, nor should it be given to a student who misses the final examination. The *M* grade is used for the latter purpose. The request for an Incomplete is generally initiated by the student and must be approved by the instructor. The instructor may initiate the assignment of an Incomplete if warranted by the circumstances and conditions referenced above. In either case, in assigning the grade of *I,* the instructor specifies (a) a default grade that counts the missing work as zero and (b) a deadline by which the missing work must be submitted. That deadline must be no later than the last class day of the next regular semester in residence. The Incomplete can be extended beyond the next semester only if the student's associate dean determines that an extension is warranted. If the required work is submitted by the deadline for removing the Incomplete, the *I* will be replaced by the grade earned. If the work is not completed by the deadline, the default grade will become the permanent grade for the course.

The Incomplete is not calculated in the GPA, but a student who receives an Incomplete is ineligible for the Dean's List.

M: Missing a Final Examination

The grade *M* is given to a student who misses a final examination, provided 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.

It is the student's responsibility to contact the Dean's Office before the first day of the next semester, regardless of whether the student will be in residence that semester, to request permission to take a makeup examination. If a request has not been submitted by the proper time, or if the student fails to take the makeup examination within the prescribed time, the *M* grade will be replaced by an *F*.

MI: Missing a Final Examination and Other Work

The grade *MI* is assigned to a student who misses the final examination and whose work is incomplete in other respects. The *MI* may not be turned in without prior authorization by the dean. It is the student's responsibility to contact the Dean's Office to request permission to take a makeup examination and to arrange for submission of the missing work.

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. Courses must be repeated in a graded status. This policy also applies to Advanced Placement credit.

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, 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 credits 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 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.

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 have 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 have 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 Dean for permission. This normally takes place during the sophomore year. Additional information is available in the Office of Peabody Student 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 Dean, 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 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 the first regular semester as a freshman. Probation is removed when the student achieves sophomore standing.
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 a probationary leave of absence during the spring semester.

Sophomores

1. The student's 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 the first regular semester as a sophomore. Probation is removed when the student achieves junior standing.
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. Probation is removed when junior standing is achieved.

Juniors

1. The student's 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 1.900 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 the first regular semester as a junior. Probation is removed when the student achieves senior standing.
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. Probation is removed when senior standing is achieved.

Seniors

The student's grade point average falls below 2.000. Probation is removed when the grade point average is raised to 2.000 or above.

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 required to participate in the programs of the Learning Center;
- The student may be advised to take a leave of absence or to withdraw from the university;
- The student may be required to take a leave of absence.

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 Chapter 6 (The Judicial System) of 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:

Chair, Peabody Undergraduate Administrative Committee
c/o Peabody Dean's Office
202 Peabody Administration Building
PMB 0329
230 Appleton Place
Nashville, TN 37203-5721
Fax: (615) 322-8501

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.

Student Leave of Absence

A student desiring a leave of absence should obtain the appropriate forms from the Office of Undergraduate Student Affairs. 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.

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 Programs

Peabody Scholars Program

Students entering Peabody College with outstanding academic records and freshmen who achieve academic distinction during their first semester at Vanderbilt are invited to participate in the Peabody Scholars Program. All freshman Peabody Scholars participate in a three-credit-hour seminar during the spring semester. In the sophomore year, Scholars enroll (spring semester) in an honors seminar for one credit hour that examines faculty-led research projects across the college. Peabody Scholars are offered a summer stipend (between sophomore and junior years) to support research, overseas study, or a community service project. In the junior year, Scholars engage in an independent research project with a Peabody professor. The Senior Capstone involves participation in university-wide scholarly and cultural events. In sum, the Peabody Scholars Program offers a rich array of intellectual opportunities and academic experiences.

Peabody freshmen may apply for the Scholars Program in early December of their first semester at Vanderbilt. Selections will be made prior to the beginning of the spring semester. 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 Claire Smrekar in the Department of Leadership, Policy, and Organizations.

Post-Baccalaureate Program with School of Nursing

Students at Peabody College may complete the B.S. degree with a major in human and organizational development or child development and also earn the master of science in nursing (M.S.N.) through a senior-in-absentia program in the School of Nursing. Students must complete the first three years of study as Peabody undergraduate students. During this time students pursue the major and the core courses in the health and human services track. Application for admission to the School of Nursing is completed during the summer after the student's sophomore year. Admitted students begin taking professional nursing courses in the fall of their senior year. Students must have successfully completed a minimum of 91 hours of undergraduate course work and all human and organizational development major requirements before officially being enrolled as students in the School of Nursing. Upon successful completion of a minimum of 29 hours of nursing course work during the senior year, students are awarded the B.S. degree. Students continue full time in the professional program in the School of Nursing for the next summer, fall, spring, and summer sessions to earn the M.S.N. degree. Students who receive the M.S.N. degree are qualified for all professional nursing careers and are eligible to apply to the National Council on Licensure Examination to become Registered Nurses.

Students may also complete a bridge program offered by the School of Nursing. Students who choose this pre-nursing program complete 72 hours of suggested course work in Peabody College, apply for admission to the School of Nursing, obtain admission, forgo the B.S. degree, and complete the remaining course requirements for the M.S.N. degree. Students interested in this program of study should consult the *School of Nursing Catalog* for a more complete program description.

A sample curriculum is given below.

Sample Curriculum Plan

Human and Organizational Development Major/Nursing

FRESHMAN YEAR		Semester hours FALL	SPRING
HOD 1000	Applied Human Development	3	-
HOD 1001	Intrapersonal Development	1	-
HOD 1100	Small Group Behavior	-	3
HOD 1101	Interpersonal Development	-	1
Math	Mathematics Course	3	-
	Statistics Course	-	3
Philosophy	Philosophy Course	-	3
	Liberal Education Core	6	6
Psychology 1630	Developmental Psychology	3	-
		16	16

SOPHOMORE YEAR		Semester hours FALL	SPRING
HOD 1200	Understanding Organizations	3	-
HOD 1400	Talent Management and Organizational Fit	-	3
HOD 1700	Systematic Inquiry I	3	-
Econ 100	Economics	3	-
HOD 1800	Public Policy	-	3
NURS 150	Introduction to Microbiology	-	4
	Liberal Education Core	6	6
		15	16

JUNIOR YEAR*			
HOD Courses	HOD Health and Human Services Track Required Courses	3	6
HOD Courses	HOD Track Electives	3	3
NURS 210A	Human Anatomy and Physiology	4	-
NURS 210B	Human Anatomy and Physiology	-	4
NURS 231A	Introduction to Nutrition	2	-
	Liberal Education Core	3	3
		15	16

*Students apply for admission to the School of Nursing during their junior year.

SENIOR YEAR

FALL SEMESTER		Hours
NURS 215	Foundations of Professional Nursing Role Development I	2
NURS 220	Principles of Client-Centered Care	1
NURS 225	Enhancement of Community and Population Health I	2
NURS 235	Human Experience of Health and Illness Across the Lifespan I	4
NURS 245	Fundamentals of Clinical Practice*	5
NURS 255A	Pharmacology for Nursing Care I	2
		16

SPRING SEMESTER		
NURS 216	Foundations of Professional Nursing Role Development II	2
NURS 226	Enhancement of Community and Population Health II	3
NURS 236	Human Experience of Health and Illness Across the Lifespan II	5
NURS 246	Integration of Theoretical and Clinical Aspects of Nursing I*	3
NURS 255B	Pharmacology for Nursing Care II	2
		15

SUMMER SEMESTER		
NURS 217	Foundations of Professional Nursing Role Development III	2
NURS 227	Enhancement of Community and Population Health III	2
NURS 237	Human Experience of Health and Illness Across the Lifespan III	4
NURS 247A	Integration of Theoretical and Clinical Aspects of Nursing II	1
NURS 247B	Capstone Clinical Practicum	2
NURS 256	Pharmacology for Nursing Care III	1
		12

*Acceptable as undergraduate Human and Organizational Development internship requirement.

B.S. in human and organizational development conferred at the end of the spring semester. Thirty-nine (39) additional hours are required for the M.S.N. Refer to the *School of Nursing Catalog* for requirements for completion of the M.S.N.

Interdisciplinary Majors

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.

Liberal Education Core Requirements. 40 hours.

Language and Literacy Studies (36 hours)

COMMUNICATIONS.
6 hours from:
CMST 100, Fundamentals of Public Speaking; CMST 101, Interpersonal Communications

ENGLISH.
9 hours from:
ENGL102W, 117W or 118W and 116W and 200 and above

EDUCATION.
9 hours from:
ENED 2100, 2200 or 2920 (3 hours); ENED 2280 (3 hours); ENED 2030, SPED 2030 or Peabody Psychology 2000 (3 hours)

ADDITIONAL COURSES
12 hours from two areas:
ANTH 105, Introduction to Language and Culture; ANTH 201, Introduction to Linguistics; ANTH 203, Anthropological Linguistics; ANTH 219, Comparative Writing Systems; CMST 210, Rhetoric of Civic Life; CMST 220, Rhetoric of American Experience, 1640-1865; CMST 221, Rhetoric of American Experience, 1865-1945; CMST 223, Values of Modern Communication; CMST 225, Rhetoric of the American Experience 1945-Present; CMST 241, Rhetoric of Mass Media; PHIL102, General Logic; PSCI 242, Political Communication; THTR 100, Fundamentals of Theatre

Mathematics and Science Studies (35-37 hours)

BIOLOGICAL SCIENCES.
4 hours from:
BSCI 100 and 101, Biology Today; BSCI 105, Human Biology; BSCI 110A and 111A, or BSCI 110B and 111B, Introduction to Biological Sciences; BSCI 118, Green Earth, the Biodiversity and Evolution of Green Plants

CHEMISTRY.
4 hours from:
CHEM100A and 101A, or CHEM 100B and 101B, Introductory Chemistry; CHEM 102A and 104A, or CHEM 102B and 104B, General Chemistry

PHYSICS.
4 hours from:
PHYS 110 and 111, Introductory Physics; PHYS 116A and 118A or 116B and 118B, General Physics

EARTH AND SPACE SCIENCES.
3-4 hours from:
ASTR 102 and103, Introductory Astronomy: Stars and Galaxies; EES 101 and 111, The Dynamic Earth; EES 103and 113, Oceanography; EES 108, Earth and Atmosphere; EES 114W, Ecology, Evolution, and Climate through Time

HISTORY/ PHIILOSOPHY OF SCIENCE.
3 hours from:
ASTR 203, Theories of the Universe; HIST 280, Modern Medicine; PHIL 244, Philosophy and the Natural Sciences

CALCULUS.
8-9 hours from:
MATH 150A, 150B, and 170, Single-Variable Calculus I, II, and III; MATH 155A and 155B, Accelerated Single-Variable Calculus I and II

PROBABILITY AND STATISTICS.
3 hours from:
MATH 215, Discrete Mathematics; MATH 218, Introduction to Probability and Mathematics Statistics; PSY-PC 2101 Introduction to Statistical Analysis

GEOMETRY.
3 hours from:
MATH 240, Transformation Geometry; MATH 242, Introduction to Topology; MATH 250, Introduction to Mathematical Logic

ALGEBRA
3 hours from:
MATH 194, Methods of Linear Algebra; MATH 204, Linear Algebra; MATH 223, Abstract Algebra

Natural Science Studies (35-36 hours)

BIOLOGICAL SCIENCES.
8 hours from:
BSCI 100/101, Biology Today; BSCI 105, Human Biology; BSCI 110A and 111A, and/or 110B and 111B, Introduction to Biological Sciences; BSCI 118, Green Earth, the Biodiversity and Evolution of Green Plants

CHEMISTRY.
8 hours from:
CHEM 100A and101A and/or 100B/101B, Introductory Chemistry; CHEM 102A and 104A and/or 102B and 104B, General Chemistry

PHYSICS.
4 hours from:
PHYS 110 and111, Introductory Physics; PHYS 116A/118A or 116B and 118B, General Physics

EARTH AND SPACE SCIENCES.
3-4 hours from:
ASTR 102/103 Introductory Astronomy: Stars and Galaxies; EES 101 and 111, The Dynamic Earth; EES 103 and 113, Oceanography; EES 108 Earth and Atmosphere; EES 114W, Ecology, Evolution, and Climate through Time

HISTORY/ PHIILOSOPHY OF SCIENCE.
3 hours from:
ASTR 203, Theories of the Universe; HIST 280, Modern Medicine; PHIL 244, 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 2530, ELL Educational Foundations; EDUC 2550, Linguistics and Language Acquisition for ELL Teachers; ENGL 118W, Introduction to Literary and Cultural Analysis

PSYCHOLOGY.
3 hours from:
PSY-PC 1630, Developmental Psychology; PSY-PC 2310, Educational Psychology

LINGUISTICS.
3 hours from:
ANTH 101, Introduction to Linguistics; ENED 2030, Fostering Language in Diverse Classrooms; SPED 2030, Introduction to Language and Communication

FOREIGN LANGUAGE.
9 hours of language courses from:
Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Portuguese, Russian, or Spanish

ELECTIVES.
6 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 or early childhood majors seeking an added endorsement in ELL, in addition to the above major requirements, the following 9 hours are required: EDUC 2540, ELL Methods and Materials (3 hours); EDUC 2560, Assessment of ELL (3 hours); EDUC 2571, 2572, and 2573, 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 101, Introduction to Anthropology; ANTH 103, Introduction to Biological Anthropology; ANTH 104, Introduction to Archaeology

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 100, Principles of Macroeconomics; ECON 101, Principles of Microeconomics; ECON150, 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 139, America to 1776; HIST 140, U.S. 1776-1877; HIST 141, U.S. 1877-1945; HIST 142, U.S. Post-1945

Additional four courses (12 hours) of United States History courses from:
HIST 139-144, 166, 169, 172, 173, 258, 259, 261-265, 269-271, 292

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, Political Science, and Sociology

European History
6 hours from:
HIST 135, History of Western Civilization to 1700; HIST 136, History of Western Civilization since 1700

Additional four courses on European History from:
HIST 160, 209, 210, 222-241

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, Political Science, and Sociology

American Politics
3 hours from:
PSCI 100, Intro. to American Government and Politics

Any five (15 hours) of the following PSCI courses: 204, 222, 240-262

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, and Sociology

World Politics
3 hours from:
PSCI 101, Introduction to Comparative Politics; PSCI 102, Introduction to International Politics

Any five (15 hours) of the following PSCI courses: 210-228 and 224-236

Six courses (18 hours) drawn from at least three areas: Anthropology, Economics, History, Sociology

Sociology
6 hours from:
SOC 101, Introduction to Sociology, or SOC 102, Contemporary Social Problems (3 hours); SOC 201, 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

Majors in Child Development, Child Studies, and Cognitive Studies

CHAIR, DEPARTMENT OF PSYCHOLOGY AND HUMAN DEVELOPMENT Amy Needham
DIRECTOR OF UNDERGRADUATE STUDIES Leigh Wadsworth
PROFESSORS EMERITI David S. Cordray, Kathleen V. Hoover-Dempsey, Howard M. Sandler
PROFESSORS David A Cole, Bruce E. Compas, Elizabeth Dykens, Dale C. Farran, Judy Garber, Daniel T. Levin, Bruce McCandliss, Amy Needham, John J. Reiser, Joseph Lee Rodgers III, James H. Steiger, Tedra Ann Walden
ASSOCIATE PROFESSORS Laura R. Novick, Bethany Rittle-Johnson, Deborah W. Rowe, Megan M. Saylor, Craig A. Smith, Georgene Troseth, Bahr Weiss
ASSISTANT PROFESSORS Sun-Joo Cho, Kristopher Preacher, Gavin Price, Sonya Sterba
ASSISTANT CLINICAL PROFESSOR Vicki S. Harris
RESEARCH ASSISTANT PROFESSOR Julia Noland
SENIOR LECTURERS Steven A. McFadyen-Ketchum, Francis Joseph McLaughlin III, Leigh Wadsworth

Major in Child Development

THE child development major is designed for students who wish to study children (infancy through adolescence) and the main 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. [See the Peabody *Undergraduate* Handbook, available from the Office of Undergraduate Academic Affairs, for slight variations in programs of study for students pursuing child development as a second major.]

Liberal Education Core Requirements. Minimum 40 hours.

COMMUNICATIONS *(6 hours)* from the following courses:
Communication Studies (All Communication Studies courses count except 289 and above)
English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W, 122, 123
Theatre 100, 115F

HUMANITIES *(9 hours and two fields required)* to include:
Philosophy (3 hours) from the following courses:
Philosophy (All Philosophy courses except 289A and 289B and above); 105 is recommended
Political Science 203

Other Humanities courses *(6 hours)* from the following courses:
African American and Diaspora Studies 260
Arabic 210B and above
Chinese 202, 211, 212, 241, 242, 251, 252
Classical Studies 115F, 130, 146, 150, 204, 205, 206, 224
Computer Science 151
English (If the course selected has not been used to satisfy the Communications area) 102W, 104W, 105W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
Film Studies 125
French 102 and above (except 287A and above)
German 102 and above (except 289A and above)
Greek 202 and above (except 289)
Hebrew 111B and above (except 289A and above)
History of Art 110, 111, 115F, 210 and above (except 288 and above)
Italian 101B and above (except 289 and above)
Japanese 202 and above (except 289A and 289B)
Jewish Studies 135W, 253W
Latin 102 and above (except 289)
Music MUSC 100 and above (except 294 and above); MUSL 103 and above (except 147, 160, 171, 289 and above)
Philosophy 100 and above (except 289A and 289B and above)
Portuguese 102 and above (except 225, 289, and 294)

Religious Studies 107 and above (except 280 and above)
Russian 102 and above (except 171, 172, 280A and above)
Spanish 102 and above (except 280, 289, 294 and above)
Theatre 100, 115F, 201, 202, 203, 204, 232
Women's and Gender Studies 150, 271

The Humanities area cannot be met with three philosophy courses. Two different fields are required.

MATHEMATICS *(6 hours)* to include:
Statistics (3 hours)
Psychology 2101, Psychology 209, Economics 150
Mathematics *(3 hours)*
One of:
Mathematics 140, 150A, 150B, 155A, 155B
Computer Science 212
Psychology 2102

NATURAL SCIENCE. *(7 hours)* One Biological Sciences or Nursing course is required.
One lab science *(4 or 5 hours)* from the following courses:
Astronomy 102 and 103
Biological Sciences 100 and 101A, 105, 110A and 111A, 110B and 111B, 118, 218, 219
Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
Earth and Environmental Sciences 101 and 111, 102, 103 and 113, 225
Nursing 150, 210A, 210B
Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B
And
One of the following (3 hours) (Must be a BSCI or Nursing course if not taken as the lab science course):
Astronomy 102, 201, 203, 205
Biological Sciences 110A, 110B
Chemistry 101A
Earth and Environmental Sciences 101, 103, 106, 108, 114W
Neuroscience 201
Nursing 231A and 231B
Physics 110
Or
Two lab science courses (8-10 hours) will meet the Natural Science requirement.

CULTURAL STUDIES. *(3 hours)*
One course from the following;
African American and Diaspora Studies: 101, 110, 120, 155, 200, 201, 210, 215, 221, 230, 260
American Studies 100, 101W
Anthropology 101, 103, 206, 207, 210, 214, 220, 222, 223, 226, 232, 234, 243, 246, 247, 248, 249, 260, 262, 263, 264, 265, 266, 267
Asian Studies 211, 212, 240
Chinese 251, 252
Classics 130, 146, 150, 204, 205, 206, 211, 220, 222, 224, 236, 238
Communication Studies 223, 224, 235
Earth and Environmental Sciences 205
Economics 224, 267, 288
Education 2060
English 118W, 246, 260, 263, 265, 267, 268A, 268B, 271, 275, 277, 279, 279W, 282
European Studies 201
Film 211
French 209, 210, 215, 218, 234, 239, 251, 255, 258, 261, 269
German 172, 201W, 216, 221, 222, 235, 237, 241, 270, 271, 273, 274, 275
Greek 212
History 105, 106, 107, 108, 109, 127, 128, 137, 138, 143, 144, 149, 160, 161, 176, 183, 184, 202, 203, 205, 206, 209, 210, 213, 222, 223, 231, 234, 241, 243W, 244, 245, 246, 247, 249, 250, 251, 253A, 257, 258, 259, 260, 262, 263, 264, 268, 269, 280, 281, 282, 283
History of Art 120, 222, 238, 241, 242, 245, 252, 253, 255, 256
Human and Organizational Development 2240, 2400, 2410, 2420, 2430, 2460, 2660
Italian 230
Jewish Studies 120, 121, 135W, 155, 156, 245, 250, 251, 252, 253W, 254, 255
Latin 206, 215
Latin American Studies 201, 260
Medicine, Health, and Society 201
Music Literature 103, 148, 149, 151, 153, 171, 183, 200, 201, 250, 261, 262
Philosophy 103, 211, 235, 238, 252, 258, 261, 262, 263
Political Science 101, 102, 204, 205, 206, 208, 213, 214, 215, 216, 217, 218, 219, 228, 230, 247, 263
Portuguese 225
Psychology—Peabody 2230
Religious Studies 107, 110W, 112, 113, 130, 204W, 206, 219, 220W, 222, 223, 229, 230, 249, 251, 254
Russian 171, 172, 231, 232, 234
Sociology 101, 102, 103, 104, 218, 224, 230, 234, 237, 239, 246, 248, 249, 250, 251, 254, 255, 256, 257, 268, 272, 277, 279
Spanish 202, 204, 208, 221, 226, 231, 235, 243, 244
Special Education 2060
Theatre 216
Women's and Gender Studies 150, 201, 212, 226, 240, 243, 267, 268, 269, 270, 271, 272

SOCIAL SCIENCE. *(6 hours)* 3 of the 6 hours must be from a subject area other than the Cultural Studies selection.
African American and Diaspora Studies 101, 155, 221, 230
American Studies 100, 100W
Anthropology (All regular Anthropology courses except 288A and above)
Classical Studies 207, 208, 209, 212, 213
Economics 100, 101, 226, 266, 271
History (All regular History courses except 169, 293 and above)
History of Art 255, 256
Human and Organizational Development 2280, 2670
Jewish Studies 156
Music Literature/History 147, 160, 171
Political Science 100 and above (except 280A and above)
Psychology—A&S (All courses except 209, 225, 231, 280 and above)
Psychology—Peabody (All courses except 2101, 2102, 2510-2620, 2810, 2820, 2970, 2980, 2990)
Sociology (All regular Sociology courses except 280A and above)
Women's and Gender Studies 226, 240, 243, 267, 268

LIBERAL CORE ELECTIVE. *(3 hours)* Any course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES. Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

WRITING REQUIREMENT
All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

NOTE: First-year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open to further enrollment.

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.

Psychology 1630. Developmental Psychology
Psychology 1500. Cognitive Aspects of Human Development
Psychology 1750. Social and Personality Development
Psychology 2102. Statistical Analysis

One of the following two courses:
Psychology 2250. Infancy
Psychology 2320. Adolescent Development

Two of the following three courses:
Psychology 2510. Experimental Methods, or
Psy 208. Research Methods
Psychology 2530. Psychometric Methods
Psychology 2980 or 2990. 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.

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.

Education 2120. Children in Families and Schools
Education 2140. Learning and Development in Early Childhood Education
English Education 2030. Fostering Language in Classrooms
English Education 2100. Literature and Drama for Young Children
English Education 2200. Exploring Literature for Children
Neuroscience 201. Neuroscience
Neuroscience 269. Developmental Neuroscience
Philosophy 246. Philosophy of Language
Psychology 1150 or 1157. First-Year Seminar
Psychology 1600. Psychology of Thinking, or
`Psy 225. Cognitive Psychology
Psychology 1700. Social and Emotional Context of Cognition
Psychology 2000. Language Development
Psychology 2100. Advanced Topical Seminars (This course is intended for students beyond the first year. May be repeated provided no duplication of content.)
Psychology 2230. Family, Career, and Gender: Developmental Perspectives
Psychology 2250. Infancy (if not taken as part of CD required courses)
Psychology 2310. Educational Psychology
Psychology 2320. Adolescent Development (if not taken as part of CD required courses)
Psychology 2330. Psychology of Film
Psychology 2510. Experimental Methods (if not taken as part of CD required courses)
Psychology 2530. Psychometric Methods (if not taken as part of CD required courses)
Psychology 268. Health Psychology
Psychology 2690. Special Topic Seminars (These vary from semester to semester; any Psychology 2690 appropriate for child development is acceptable.)
Psychology 2700. Introduction to Clinical Psychology.
Psych 2890/HOD 2280. Ethical Issues in Human Services
Psychology 2970.* Independent Study
Psychology 2980.* Directed Research
Psychology 2990 or Psychology 295-296.* Honors Research
Special Education 2020. Family Interventions
Special Education 2030. Introduction to Language and Communication
Special Education 2400. Early Education for Children with Disabilities
Special Education 2420. Developmental Assessment Strategies

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).

The Five-year Child Development/Nursing Program

The Five-year Child Development/Nursing program combines the undergraduate major degree in child development with the requirements of the Master of Science in Nursing program in the School of Nursing. The prerequisites for admission to the Five-year Child Development/Nursing program are completed within the first three years of the undergraduate program; these include all requirements of the child development major and all prerequisites for admission to the Master of Science in Nursing (M.S.N.) program. Application to the M.S.N. program in the School of Nursing is made by December of the sophomore year, and admissions decisions are made during the spring that follows. If admitted to the program, the student takes all senior year courses in the School of Nursing. The bachelor of science degree in child development is awarded after the completion of the senior year (and a minimum of 120 credit hours). The student continues in the Nursing program during the summer immediately following graduation and continues through the fifth year as a student in the School of Nursing. The master of science in nursing is awarded upon completion of all Nursing program requirements, usually at the end of the fifth year of study.

Sample Curriculum Plan: Child Development Major/Nursing

		Semester hours FALL	SPRING
FRESHMAN YEAR	*30 hours*		
Psychology 1630	Developmental Psychology	3	-
Psychology 1500	Cognitive Aspects of Human Development	-	3
Psychology 1750	Social and Personality Development	-	3
	Liberal Education Core	12	9
		15	15
SOPHOMORE YEAR	*32 hours*		
Psychology 2101	Statistics*, **or**	3	-
Psy 209			
Psychology 2102	Statistics	-	3
NURS 150	Introduction to Microbiology**	-	4
One of the following:		3	-
Psychology 2250	Infancy		
Psychology 2320	Adolescent Development		
One of the following:		-	3
Psychology 2510	Experimental Methods, **or**		
Psy 208	Research Methods		
Psychology 2530	Psychometric Methods		
Psychology 2980	Directed Research		
	Liberal Education Core	10	6
		16	16

Application to the Nursing program: Middle of the sophomore year

JUNIOR YEAR	*31 hours*		
NURS 210A	Anatomy and Physiology I**	4	-
NURS 210B	Anatomy and Physiology II**	-	4
NURS 231A	Nutrition	-	2
One of the following:		3	-
Psychology 2510	Experimental Methods, **or**		
Psy 208	Research Methods		
Psychology 2530	Psychometric Methods		
Psychology 2980	Directed Research		
	Child Development major elective area	6	3
	Liberal Education Core/Electives	3	6
		16	15

*Child development major prerequisite and meets Liberal Education Core requirement.
**Meets Five-year Nursing Program requirement and Liberal Education Core requirement.

Pre-Specialty Five-year Curriculum

SENIOR YEAR*

(If not admitted to the nursing program, the student will not take the courses below, but will take "regular" senior year courses [e.g., electives].)

		Semester hours FALL	SPRING
NURS 215	Foundations of Professional Nursing I	2	-
NURS 225	Population-Based Health Care	2	-
NURS 235	Human Experience of Health and Illness Across the Lifespan I	4	-
NURS 245	Fundamentals of Clinical Practice	5	-
NURS 255A	Basic Pharmacology I	2	-
	Semester Total	15	

*In the fall semester, students are enrolled officially in Peabody College and are charged undergraduate tuition; in the spring semester, students are enrolled officially in the School of Nursing and are charged School of Nursing tuition. The two tuition rates are different.

NURS 217	Foundations of Professional Nursing II	-	3
NURS 236	Human Experience of Health and Illness Across the Lifespan II	-	5
NURS 246	Integration of Theoretical and Clinical Aspects of Nursing I	-	4
NURS 255B	Pharmacology for Nursing Care	-	2
	Semester Total		14

Undergraduate degree (B.S. in child development) conferred at the end of the spring semester of the senior year.

SUMMER AFTER THE B.S. DEGREE

		SUMMER
NURS 216	Foundations of Professional Nursing III	2
NURS 227	Health Care Systems	3
NURS 237	Human Experience of Health and Illness III	4
NURS 247A	Integration of Theoretical and Clinical Aspects of Nursing II	2
NURS 247B	Integration of Theoretical and Clinical Aspects of Nursing III	2
	Semester Total	13

FALL 15 + SPRING 14 + SUMMER 13 = 42 hours

FIFTH YEAR IN PRE-SPECIALTY
Student is enrolled full time in nursing in the fall, spring, and summer semesters. An additional 39 semester hours are earned in graduate (300-level) courses. Note that Nurse-Midwifery and Nurse-Midwifery Family Practitioner specialties require one or more additional semesters.

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. Interested students should discuss the program with Craig Smith, associate professor of psychology and director of undergraduate studies.

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. [See explanatory material above and program of studies work sheets (available in the Office of Undergraduate Academic Affairs) for slight variations in programs of study for students pursuing child studies as a second major.]

Liberal Education Core Requirements. Minimum 40 hours.

COMMUNICATIONS *(6 hours)* from the following courses:
Communication Studies (All Communication Studies courses count except 289 and above)
English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W, 122, 123
Theatre 100, 115F

HUMANITIES *(9 hours and two fields required)* to include:
- African American and Diaspora Studies 260
- Arabic 210B and above
- Chinese 202, 211, 212, 241, 242, 251, 252
- Classical Studies 115F, 130, 146, 150, 204, 205, 206, 224
- Computer Science 151
- English (If the course selected has not been used to satisfy the Communications area) 102W, 104W, 105W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
- Film Studies 125
- French 102 and above (except 287A and above)
- German 102 and above (except 289A and above)
- Greek 202 and above (except 289)
- Hebrew 111B and above (except 289A and above)
- History of Art 110, 111, 115F, 210 and above (except 288 and above)
- Italian 101B and above (except 289 and above)
- Japanese 202 and above (except 289A and 289B)
- Jewish Studies 135W, 253W
- Latin 102 and above (except 289)
- Music MUSC 100 and above (except 294 and above); MUSL 103 and above (except 147, 160, 171, 289 and above)
- Philosophy 100 and above (except 289A and 289B and above)
- Portuguese 102 and above (except 225, 289, and 294)
- Religious Studies 107 and above (except 280 and above)
- Russian 102 and above (except 171, 172, 280A and above)
- Spanish 102 and above (except 280, 289, 294 and above)
- Theatre 100, 115F, 201, 202, 203, 204, 232
- Women's and Gender Studies 150, 271

MATHEMATICS *(6 hours)* to include:
Statistics *(3 hours)*
- Psychology 2101, Psychology 209, Economics 150

Mathematics *(3 hours)*
- One of:
- Mathematics 140, 150A, 150B, 155A, 155B
- Computer Science 212
- Psychology 2102

NATURAL SCIENCE. *(7 hours)* One Biological Sciences or Nursing course is required.
One lab science *(4 or 5 hours)* from the following courses:
- Astronomy 102 and 103
- Biological Sciences 100 and 101A, 105, 110A and 111A, 110B and 111B, 118, 218, 219
- Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
- Earth and Environmental Sciences 101 and 111, 102, 103 and 113, 225
- Nursing 150, 210A, 210B
- Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B

And
One of the following *(3 hours)* (Must be a Biological Sciences or Nursing course if not taken as the lab science course):
- Astronomy 102, 201, 203, 205
- Biological Sciences 110A, 110B
- Chemistry 101A
- Earth and Environmental Sciences 101, 103, 106, 108, 114W
- Neuroscience 201
- Nursing 231A and 231B
- Physics 110

Or
Two lab science courses *(8-10 hours)* will meet the Natural Science requirement.

CULTURAL STUDIES. *(3 hours)*
One course from the following;
- African American and Diaspora Studies: 101, 110, 120, 155, 200, 201, 210, 215, 221, 230, 260
- American Studies 100, 100W
- Anthropology 101, 103, 206, 207, 210, 214, 220, 222, 223, 226, 232, 234, 243, 246, 247, 248, 249, 260, 262, 263, 264, 265, 266, 267
- Asian Studies 211, 212, 240
- Chinese 251, 252
- Classics 130, 146, 150, 204, 205, 206, 211, 220, 222, 224, 236, 238
- Communication Studies 223, 224, 235
- Earth and Environmental Sciences 205
- Economics 224, 267, 288
- Education 2060
- English 104W, 105W118W, 246, 260, 263, 265, 267, 268A, 268B, 271, 275, 277, 279, 279W, 282
- European Studies 201
- Film 211
- French 209, 210, 215, 218, 234, 239, 251, 255, 258, 261, 269
- German 172, 201W, 216, 221, 222, 235, 237, 241, 270, 271, 273, 274, 275
- Greek 212
- History 105, 106, 107, 108, 109, 127, 128, 137, 138, 143, 144, 149, 160, 161, 176, 183, 184, 202, 203, 205, 206, 209, 210, 213, 222,

223, 231, 234, 241, 243W, 244, 245, 246, 247, 249, 250, 251, 253A, 257, 258, 259, 260, 262, 263, 264, 268, 269, 280, 281, 282, 283
History of Art 120, 222, 238, 241, 242, 245, 251, 252, 253, 255, 256
Human and Organizational Development 2240, 2400, 2410, 2420, 2430, 2460, 2660
Italian 230
Jewish Studies 120, 121, 135, 135W, 155, 156, 245, 250, 251, 252, 253W, 254, 255
Latin 206, 215
Latin American Studies 201, 260
Medicine, Health, and Society 201
Music Literature 103, 148, 149, 151, 153, 171, 200, 201, 250, 261, 262
Philosophy 103, 211, 235, 238, 252, 258, 261, 262, 263
Political Science 101, 102, 204, 205, 206, 208, 213, 214, 215, 216, 217, 218, 219, 228, 230, 247, 263
Portuguese 225
Psychology—Peabody 2230
Religious Studies 107, 110W, 112, 113, 130, 204W, 206, 219, 220W, 222, 223, 229, 230, 249, 251, 254
Russian 171, 172, 231, 232, 234
Sociology 101, 102, 103, 104, 218, 224, 230, 234, 237, 239, 246, 248, 249, 250, 251, 254, 255, 256, 257, 268, 272, 277, 279
Spanish 202, 204, 208, 221, 226, 231, 235, 243, 244
Special Education 2060
Theatre 216
Women's and Gender Studies 150, 201, 212, 226, 240, 243, 267, 268, 269, 270, 271, 272

SOCIAL SCIENCE. *(6 hours)* 3 of the 6 hours must be from a subject area other than the Cultural Studies selection.
African American and Diaspora Studies 101, 155, 221, 230
American Studies 100, 100W
Anthropology (All regular Anthropology courses except 288A and above)
Classical Studies 207, 208, 209, 212, 213
Economics 100, 101, 226, 266, 271
History (All regular History courses except 169, 293 and above)
History of Art 130, 245, 255, 256, 257
Human and Organizational Development 2280, 2670
Jewish Studies 156
Music Literature/History 147, 160, 171
Political Science 100 and above (except 280A and above)
Psychology—A&S (All courses except 209, 225, 231, 280 and above)
Psychology—Peabody (All courses except 2101, 2102, 2510-2620, 2820, 2970, 2980, 2990)
Sociology (All regular Sociology courses except 280A and above)
Women's and Gender Studies 226, 240, 243, 267, 268

LIBERAL CORE ELECTIVE. *(3 hours.)* Any course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES. Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

WRITING REQUIREMENT
All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

Note: First-year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open to further enrollment.

Child Studies Major Courses

DEVELOPMENT COURSES. *(9 hours)*
Psychology 1630. Developmental Psychology
Psychology 1500. Cognitive Aspects of Human Development
Psychology 1750. Social and Personality Development
Psychology 2250. Infancy
Psychology 2320. Adolescent Development

LEARNING. *(3 hours)*
Mathematics Education 2100 or 2200
Science Education 2200 or Social Studies Education 2100
Psychology 2310. Educational Psychology
Special Education 2110. Managing Academic and Social Behavior
Special Education 2420. Assessment Procedures for Young Children

RESEARCH METHODS. *(3 hours)*
Psychology 2510. Experimental Methods, or
Psy 208. Research Methods
Psychology 2530. Psychometric Methods
HOD 1700. Systematic Inquiry

FAMILIES, COMMUNITY, AND DIVERSITY. *(6 hours)*
Education 1020. Society, School, and the Teacher
Education 2120. Children in Families and Schools
HOD 2510. Health Service Delivery to Diverse Populations
HOD 2600. Social Problems I
Special Education 1010. Introduction to Exceptionality
Special Education 2020. Family Intervention
Special Education 2060. Cultural Diversity in American Education
Education 2920. Social and Philosophical Aspects of Education
Psychology 2470/HOD 2670. Introduction to Community Psychology

LANGUAGE AND LITERACY. *(6 hours)*
ANTH 201. Introduction to Linguistics
EDUC 2115. Language and Literacy Learning in Young Children
EDUC 2430. Addressing Problems in Literacy Learning
ENED 2030. Fostering Language in Classrooms
English Education 2100. Literature and Drama for Young Children
Or
English Education 2200. Exploring Literature for Children
Philosophy 246. Philosophy of Language
Psychology 2000. Language Development
Special Education 2030. Introduction to Language and Communication

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.

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.

Psychology 1150 or 1157. First-Year Seminar
Psychology 1700. Social and Emotional Contexts of Cognition
Psychology 2100. Advanced Topical Seminars (This course is intended for students beyond the first year. May be repeated provided no duplication of content.)
Psychology 2102. Statistical Analysis
Psychology 2690. Special Topics Seminars. (These vary from semester to semester and may be repeated as long as there is no duplication of content.) Any section of Psychology 2690 with content appropriate for child studies is acceptable.

Psychology 2970.* Independent Study
Psychology 2980.* Readings and Research for Undergraduates
Psychology 2990 or Psychology 295-296.* Honors Research

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. [See explanatory material above and program of studies work sheets (available in the Office of Undergraduate Academic Affairs) for slight variations in programs of study for students pursuing cognitive studies as a second major.]

Liberal Education Core Requirements. Minimum 40 hours.

COMMUNICATIONS *(6 hours)* from the following courses:
Communication Studies (All Communication Studies courses count except 289 and above)
English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W, 122, 123
Theatre 100, 115F

HUMANITIES *(9 hours and two fields required)* to include:
African American and Diaspora Studies 260
Arabic 210B and above
Chinese 202, 211, 212, 241, 242, 251, 252
Classical Studies 115F, 130, 146, 150, 204, 205, 206, 224
Computer Science 151
English (If the course selected has not been used to satisfy the Communications area) 102W, 104W, 105W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
Film Studies 125
French 102 and above (except 287A and above)
German 102 and above (except 289A and above)
Greek 202 and above (except 289)
Hebrew 111B and above (except 289A and above)
History of Art 110, 111, 115F, 210 and above (except 288 and above)
Italian 101B and above (except 289 and above)
Japanese 202 and above (except 289A and 289B)
Jewish Studies 135W, 253W
Latin 102 and above (except 289)
Music MUSC 100 and above (except 294 and above); MUSL 103 and above (except 147, 160, 171, 289 and above)
Philosophy 100 and above (except 289A and 289B and above)
Portuguese 102 and above (except 225, 289, and 294)
Religious Studies 107 and above (except 280 and above)
Russian 102 and above (except 171, 172, 280A and above)
Sociology 217
Spanish 102 and above (except 280, 289, 294 and above)
Theatre 100, 115F, 201, 202, 203, 204, 232
Women's and Gender Studies 150, 271

MATHEMATICS *(6 hours)* to include:
Statistics *(3 hours)*
Psychology 2101, Psychology 209, Economics 150
Mathematics *(3 hours)*
One of:
Mathematics 140, 150A, 150B, 155A, 155B
Computer Science 212
Psychology 2102

NATURAL SCIENCE. *(7 hours)*
One lab science *(4 or 5 hours)* from the following courses:
Astronomy 102 and 103
Biological Sciences 100 and 101A, 105, 110A and 111A, 110B and 111B, 118, 218, 219
Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
Earth and Environmental Sciences 101 and 111, 102, 103 and 113, 225
Nursing 150, 210A, 210B
Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B
And
One of the following *(3 hours)*:
Astronomy 102, 201, 203, 205
Biological Sciences 110A, 110B
Chemistry 101A
Earth and Environmental Sciences 101, 103, 106, 108, 114W
Neuroscience 201
Nursing 231A and 231B
Physics 110
Or
Two lab science courses *(8-10 hours)* will meet the Natural Science requirement.

CULTURAL STUDIES. *(3 hours)*
One course from the following;
African American and Diaspora Studies: 101, 110, 120, 155, 200, 201, 210, 215, 221, 230, 260
American Studies 100, 100W
Anthropology 101, 103, 206, 207, 210, 214, 220, 222, 223, 226, 232, 234, 243, 246, 247, 248, 249, 260, 262, 263, 264, 265, 266, 267
Asian Studies 211, 212, 240
Chinese 251, 252
Classics 130, 146, 150, 204, 205, 206, 211, 220, 222, 224, 236, 238
Communication Studies 223, 224, 235
Earth and Environmental Sciences 205
Economics 224, 267, 288
Education 2060
English 118W, 246, 260, 263, 265, 267, 268A, 268B, 271, 275, 276, 277, 279, 279W, 282
European Studies 201
Film 211
French 209, 210, 215, 218, 234, 239, 251, 255, 258, 261, 269
German 172, 201W, 216, 221, 222, 235, 237, 241, 270, 271, 273, 274, 275
Greek 212
History 105, 106, 107, 108, 109, 127, 128, 137, 138, 143, 144, 149, 160, 161, 176, 183, 184, 202, 203, 205, 206, 209, 210, 213, 222, 223, 231, 234, 241, 243W, 244, 245, 246, 247, 249, 250, 251, 253A, 257, 258, 259, 260, 262, 263, 264, 268, 269, 280, 281, 282, 283
History of Art 120, 222, 238, 241, 242, 245, 251, 252, 253, 255, 256
Human and Organizational Development 2240, 2400, 2410, 2420, 2430, 2460, 2660
Italian 230
Jewish Studies 120, 121, 135W, 155, 156, 245, 250, 251, 252, 253W, 254, 255
Latin 206, 215
Latin American Studies 201, 260
Medicine, Health, and Society 201
Music Literature 103, 148, 149, 151, 153, 183, 200, 201, 250, 261, 262
Philosophy 103, 211, 235, 238, 252, 258, 261, 262, 263
Political Science 101, 102, 204, 205, 206, 208, 213, 214, 215, 216, 217, 218, 219, 228, 230, 247, 263
Portuguese 225
Psychology—Peabody 2230
Religious Studies 107, 110W, 112, 113, 130, 204W, 206, 219, 220W, 222, 223, 229, 230, 249, 251, 254
Russian 171, 172, 231, 232, 234
Sociology 101, 102, 103, 104, 218, 224, 230, 234, 237, 239, 246, 248, 249, 250, 251, 254, 255, 256, 257, 268, 272, 277, 279
Spanish 202, 204, 208, 221, 226, 231, 235, 243, 244
Special Education 2060
Theatre 216
Women's and Gender Studies 150, 201, 212, 226, 240, 243, 267, 268, 269, 270, 271, 272

SOCIAL SCIENCE. *(6 hours)* 3 of the 6 hours must be from a subject area other than the Cultural Studies selection.
African American and Diaspora Studies 101, 155, 221, 230
American Studies 100, 100W
Anthropology (All regular Anthropology courses except 288A and above)
Classical Studies 207, 208, 209, 212, 213
Economics 100, 101, 226, 266, 271
History (All regular History courses except 169, 293 and above)
History of Art 130, 245, 255, 256, 257
Human and Organizational Development 2280, 2670
Jewish Studies 156
Music Literature/History 147, 160, 171
Political Science 100 and above (except 280A and above)
Psychology—A&S (All courses except 209, 225, 231, 280 and above)
Psychology—Peabody (All courses except 2101, 2102, 2510-2620, 2820, 2970, 2980, 2990)
Sociology (All regular Sociology courses except 280A and above)
Women's and Gender Studies 226, 240, 243, 267, 268

LIBERAL CORE ELECTIVE. (*3 hours)* Any course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES. Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

Writing Requirement
All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

NOTE: First-Year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open to further enrollment.

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.

Psychology 1200. Minds, Brains, Contexts, and Cultures
or Psychology 1207.
Psychology 1600. Psychology of Thinking
or Psychology 225. Cognitive Psychology
Psychology 2100. Advanced Topical Seminar
and Psychology 2510. Experimental Methods
or Psychology 208. Research Methods

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.

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 201. Introduction to Linguistics
ENED 2030. Fostering Language in Classrooms
Neuroscience 201. Neuroscience
Philosophy 246. Philosophy of Language
Philosophy 256. Philosophy of Mind
Psychology 253. Human Memory
Psychology 1150 or 1157. First-Year Seminar
Psychology 1500. Cognitive Aspects of Human Development
Psychology 1700. Social and Emotional Context of Cognition
Psychology 1750. Social and Personality Development
Psychology 2000. Language Development
Psychology 2100. Advanced Topical Seminar (Intended for students beyond the first year. May be repeated if no duplication of content.)
Psychology 2310. Educational Psychology

Psychology 2330. Psychology of Film
Psychology 2970.* Independent Study
Psychology 2980.* Directed Research
Psychology 2990 or Psychology 295-296.* Honors Research
Special Education 2030. 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.

Methods of Inquiry. 6 hours.

May be used to satisfy Liberal Education Core requirements

Anthropology 211
Chemistry 210
Computer Science 101 or 212
Earth and Environmental Sciences 225
HOD 1700, 2620
Philosophy 102, 202, 244
Psychology 2102, 2530
Psychology 2980, 2990, or Psychology 295-296 (Only 3 hours from either of these courses can be applied to this requirement)
Sociology 211
Special Education 2110 (with 2111)

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:

Psychology 1630. Developmental Psychology
Psychology 2101. Introduction to Statistical Analysis (may be taken as part of the Liberal Education Core)

One of the following:
Psychology 1500. Cognitive Aspects of Human Development
Psychology 1750. Social and Personality Development

One of the following:
Psychology 2250. Infancy
Psychology 2320. Adolescent Development

One of the following:
Psychology 2510. Experimental Methods
or Psychology 208. Research Methods
Psychology 2530. 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 Cognitive Studies

The minor in cognitive studies consists of 15 hours in the following courses:

REQUIRED COURSES. *(6 hours)*

Psychology 1200. Minds, Brains, Contexts, and Cultures
or Psychology 1207.
Psychology 1600. Psychology of Thinking
or Psychology 225. Cognitive Psychology

ELECTIVE COURSES. *(9 hours)*
Psychology 1150. First-Year Seminar
or Psychology 1157.
Psychology 1500. Cognitive Aspects of Human Development
Psychology 1700. Social and Emotional Context of Cognition
Psychology 1750. Social and Personality Development
Psychology 2000. Language Development
Psychology 2100. Advanced Topical Seminar (Intended for students beyond the first year. May be repeated if no duplication of content.)
Psychology 2310. Educational Psychology
Psychology 253. Human Memory
Psychology 268. Health Psychology
Psychology 2700. Introduction to Clinical Psychology
Psychology 2980/2990. Directed Research/Honors Research (may *not* be repeated for minor credit)
Special Education 2030. Introduction to Language and Communication

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 2101: Introduction to Statistical Analysis (3 hours)
or PSY 209: Quantitative Methods (3 hours)
And
PSY-PC 2102: Statistical Analysis (3 hours)

The quantitative methods minor is an 18-hour minor. The 18 hours include both PSY-PC-2101 (or PSY 209) and PSY-PC 2102, 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 requiremeuts (pick 4):

PSY-PC 2530. Psychometric Methods
PSY-PC 2540. Psychometrics
PSY-PC 2550. Modern Robust Statistical Methods
PSY-PC 2560. Applied Latent Class and Mixture Modeling
PSY-PC 2570. Latent Growth Curve Modeling
PSY-PC 2580. Correlation and Regression
PSY-PC 2590. Introduction to Item Response Theory
PSY-PC 2600. Factor Analysis
PSY-PC 2610. Applied Nonparametric Statistics
PSY-PC 2620. Multivariate Statistics

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 at *peabody.vanderbilt.edu/departments/psych/undergraduate_programs/quantitative_methods_minor.php*

For inquiries about the quantitative methods minor, email *kris.preacher@vanderbilt.edu*

Majors in Early Childhood, Elementary, and Secondary Education

CHAIR, DEPARTMENT OF TEACHING AND LEARNING Rogers Hall
ASSOCIATE CHAIR Marcy Singer Gabella
DIRECTOR OF UNDERGRADUATE STUDIES Catherine McTamaney
PROFESSORS EMERITI Jerold P. Bauch, Carolyn M. Evertson, Charles B. Myers, Victoria J. Risko
PROFESSORS Paul A. Cobb, David K. Dickinson, Dale C. Farran, Rogers Hall, Robert Jimenez, Richard Lehrer, Leona Schauble
PROFESSOR OF THE PRACTICE EMERITA Earline D. Kendall
PROFESSORS OF THE PRACTICE Kathy Ganske, Marcy Singer Gabella, Barbara Stengel
ASSOCIATE PROFESSORS Douglas Clark, Melissa S. Gresalfi, Clifford A. Hofwolt, Ilana Seidel Horn, Kevin M. Leander, Deborah W. Rowe
ASSOCIATE PROFESSORS OF THE PRACTICE Ann M. Neely, Lisa Pray
ASSISTANT PROFESSORS Amanda Goodwin, Ebony O. McGee, Pratim Sengupta
ASSISTANT PROFESSORS OF THE PRACTICE Andrew Hostetler, Melanie Hundley, Heather L. Johnson, Amy B. Palmeri, Lanette Waddell
RESEARCH ASSISTANT PROFESSOR Alene Harris
SENIOR LECTURER Catherine McTamaney
LECTURERS Steven Baum, Andrea Henrie, Deborah Lucas-Lehrer, Jeanne Peter
INSTRUCTOR IN THE PRACTICE Emily Shahan

Early Childhood Education

THE major in early childhood education (ECE) is a field-oriented program designed to prepare students for work with children in nursery schools, preschool programs, and primary grades (grades PreK-4). Beginning in the freshman year, students observe and participate in local schools and agencies and in experimental classrooms on campus. Most Liberal Education Core courses are taken in the College of Arts and Science.

Students must combine a major in early childhood education with a second major in child studies. 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 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 Student Affairs.

B.S. Degree Requirements
Early Childhood Education (PreK–3 Licensure)

Liberal Education Core Requirements. Minimum 60 hours.

COMMUNICATIONS. *(6 hours)* to include:
Required (3 hours): English Education 2030
Communications Elective (3 hours) from the following:
Communication Studies: All CMST courses, except 289 and above)
English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W
Theatre 100, 115F

HUMANITIES *(9 hours)* to include:
One course *(3 hours)* from the following:
African American and Diaspora Studies 260
Arabic 210B
Chinese 202, 211, 212, 241, 242, 251, 252
Classical Studies 115F, 130, 146, 150, 204, 205, 206, 224
English (If the course selected has not been used to satisfy the Communications area) 102W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
Film Studies 125
French 102 and above (except 287A and above)
German 102 and above (except 289A and above)
Greek 202 and above (except 289)
Hebrew 111B and above (except 289A and above)
Italian 101B and above (except 289 and 294)
Japanese 202 and above (except 289A and 289B)
Jewish Studies 135W, 253W
Latin 102 and above (except 289)
Philosophy 100 and above (except 289A and 289B and 294)
Portuguese 102 and above (except 289 and 294)
Religious Studies 107 and above (except 280 and above)
Russian 102 and above (except 171, 172, 289A and above)
Spanish 102 and above (except 280, 289, 294 and above)
Theatre 100, 201, 202, 203, 204, 232
Women's and Gender Studies 150, 271

Art or Music *(3 hours)* from the following courses:
Art Studio 101 and above (except 288 and above)
Classical Studies 203, 204, 205, 206, 216, 217
History of Art 110 and above (except 288 and above)
Music Composition 100 and above (except 294 and above)
Music Literature 103 and above (except 147, 160, 171, 289 and above)

Literature and Drama for Young Children *(3 hours)*:
English Education 2100

MATHEMATICS *(9 hours)* to include:
Statistics *(3 hours)*
PSY 2101
Mathematics 127A or 127B
Mathematics *(3 hours):* SAT II Math Test Score Level I of 620 and above or Level II of 570 and above will satisfy the 3-hour Mathematics requirement. Academic credit is not awarded for SAT II Scores.
Or
One of:
Mathematics 140, 150A, 150B, 155A, 155B
Mathematics 127A or 127B may be used here if not used for statistics requirement.
Mathematics Education 2100 *(3 hours)*

NATURAL SCIENCE. *(7 hours)* One Biological Sciences or Nursing course is required.
One lab science (4 or 5 hours) from the following courses:
Astronomy 102 and 103
Biological Sciences 100 and 101A, 105, 110A and 111A, 110B and 111B, 118, 218, 219
Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
Earth and Environmental Sciences 101 and 111, 102, 103 and 113, 225
Nursing 150, 210A, 210B
Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B
And
One of the following *(3 hours)* (Must be a Biological Sciences or Nursing course if not taken as the lab science course):
Astronomy 102, 201, 203, 205
Biological Sciences 110A, 110B
Chemistry 101A
Earth and Environmental Sciences 101, 103, 107, 108, 114W
Neuroscience 201

Nursing 231A and 231B
Physics 110
Or
Two lab science courses (8-10 hours) will meet the Natural Science requirement, as long as one is a Biological Sciences course.

CULTURAL STUDIES. *(3 hours)*
One course from the following;
African American and Diaspora Studies: 101, 110, 120, 155, 200, 201, 210, 215, 221, 230, 260
American Studies 100, 100W
Anthropology 101, 103, 206, 207, 210, 214, 220, 222, 223, 226, 232, 234, 243, 246, 247, 248, 249, 260, 262, 263, 264, 265, 266, 267
Asian Studies 211, 212, 240
Chinese 251, 252
Classics 130, 146, 150, 204, 205, 206, 211, 220, 222, 224, 236, 238
Communication Studies 223, 224, 235
Earth and Environmental Sciences 205
Economics 224, 267, 288
Education 2060
English 118W, 246, 260, 263, 265, 267, 268A, 268B, 271, 275, 276, 277, 279W, 282
European Studies 201
Film 211
French 209, 210, 215, 218, 234, 239, 251, 255, 258, 261, 269
German 172, 201W, 216, 221, 222, 235, 237, 241, 270, 271, 273, 274, 275
Greek 212
History 105, 106, 107, 108, 109, 127, 128, 137, 138, 143, 144, 149, 160, 161, 176, 183, 184, 202, 203, 205, 206, 209, 210, 213, 222, 223, 231, 234, 241, 243W, 244, 245, 246, 247, 249, 250, 251, 253A, 257, 258, 259, 260, 262, 263, 264, 269, 280, 281, 282, 283
History of Art 120, 222, 238, 241, 242, 245, 252, 253, 255, 256
Human and Organizational Development 2240, 2400, 2410, 2420, 2430, 2460, 2660
Italian 230
Jewish Studies 120, 121, 135W, 155, 156, 245, 250, 251, 252, 253W, 254, 255
Latin 206, 215
Latin American Studies 201, 260
Medicine, Health, and Society 201
Music Literature 103, 148, 149, 151, 153, 171, 183, 200, 201, 250, 261, 262
Philosophy 103, 211, 235, 238, 252, 258, 261, 262, 263
Political Science 101, 102, 204, 205, 206, 208, 213, 214, 215, 216, 217, 218, 219, 228, 230, 247, 263
Portuguese 225
Psychology—Peabody 2230
Religious Studies 107, 110W, 112, 113, 130, 204W, 206, 219, 220W, 222, 223, 229, 230, 249, 251, 254
Russian 171, 172, 231, 232, 234
Sociology 101, 102, 103, 104, 218, 224, 230, 234, 237, 239, 246, 248, 249, 250, 251, 254, 255, 256, 257, 267, 268, 272, 276, 277, 279
Spanish 202, 204, 208, 221, 226, 231, 235, 243, 244
Special Education 2060
Theatre 216
Women's and Gender Studies 150, 201, 212, 226, 240, 243, 267, 268, 269, 270, 271, 272

SOCIAL SCIENCE. *(9 hours)*
United States History *(3 hours)*
History 139, 140, 141, 142, 143, 144, 166, 169, 173, 174, 258, 259, 261, 262, 263, 264, 265, 269, 270, 271

Required Social Science Courses *(6 hours)*
Psychology 1630 (3)
Social Studies Education 2100 (3)
LIBERAL CORE ELECTIVE. *(17 hours)* Any non-education course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES. Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

WRITING REQUIREMENT
All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

Note: First-year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open to further enrollment.

Professional Education Core. 30 hours.

EDUC 1020, 2117, 2140, 2150, 2180; HMED 2150; MTED 2150; SPED 1010, 2010, 2420, 2870/2877

Field Experiences. 14 hours.

EDUC 2116, 2151, 2291, 2702

A second major is required.

Elementary Education

THE major in elementary education is field-oriented and designed to prepare students to teach children in grades K-6. 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 major 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.

P

B.S. Degree Requirements
Elementary Education (K–6 Licensure)

Liberal Education Core Requirements. Minimum 60 hours.

COMMUNICATIONS. *(6 hours)* to include:
Required (3 hours): English Education 2030
Communications Elective (3 hours) from the following:
Communication Studies: All CMST courses, except 289 and above)
English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W
Theatre 100, 115F

HUMANITIES *(9 hours)* to include:
One course *(3 hours)* from the following:
African American and Diaspora Studies 260
Arabic 210B
Chinese 202, 211, 212, 241, 242, 251, 252
Classical Studies 115F, 130, 146, 150, 204, 205, 206, 224
English (If the course selected has not been used to satisfy the Communications area) 102W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
Film Studies 125
French 102 and above (except 287A and above)
German 102 and above (except 289A and above)
Greek 202 and above (except 289)
Hebrew 111b and above (except 289A and above)
Italian 101b and above (except 289 and 294)
Japanese 202 and above (except 289A and 289B)
Jewish Studies 135W, 253W
Latin 102 and above (except 289)
Philosophy 100 and above (except 289A and 289B and 294)
Portuguese 102 and above (except 289 and 294)
Religious Studies 107 and above (except 280 and above)
Russian 102 and above (except 171, 172, 289A and above)
Spanish 102 and above (except 280, 289, 294 and above)
Theatre 100, 201, 202, 203, 204, 232
Women's and Gender Studies 150, 271

Art or Music *(3 hours)* from the following courses:
Art Studio 101 and above (except 288 and above)
Classical Studies 203, 204, 205, 206, 216, 217
History of Art 110 and above (except 288 and above)
Music Composition 100 and above (except 294 and above)
Music Literature 103 and above (except 147, 160, 171, 289 and above)
Exploring Literature for Children or Literature for Adolescents *(3 hours)*:
English Education 2200, 2920

MATHEMATICS *(9 hours)* to include:
Mathematics (6 hours):
Six hours (two courses) in Mathematics or one Mathematics course and Psy 2101:
Mathematics 127A, 127B, 140, 150A, 150B, 155A, 155B, Psy 2101
Note: SAT II Math Test Score Level I of 620 and up or Level II of 570 and up will satisfy one course of the two Mathematics course requirement. Academic credit is not awarded for SAT II test scores.
Mathematics Education 2200 (3 hours)

NATURAL SCIENCE *(10-11 hours)* to include:
One Biological Sciences, Chemistry, Physics, or Nursing course is required.
One lab science *(4-5 hours)* from:
Astronomy 102 and 103
Biological Sciences 100 and 101A, 105, 110A and 111A, 110B and 111B or 111C, 118, 218, 219
Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
Earth and Environmental Sciences 101 and 111, 103 and 113, 225
Nursing 150, 210A, 210B
Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B

And one of the following *(3 hours)* (or another lab science class listed above):
Astronomy: 102, 201, 203, 205
Biological Sciences: 110A, 110B
Chemistry: 101A
Earth and Environmental Sciences 101, 103, 107, 108, 114W
Neuroscience: 201
Nursing: 231A *and* 231B
Physics: 110
And Science Education 2200 is required *(3 hours)*.

CULTURAL STUDIES. *(3 hours)*
One course from the following;
African American and Diaspora Studies: 101, 110, 120, 155, 200, 201, 210, 215, 221, 230, 260
American Studies 100, 100W
Anthropology 101, 103, 206, 207, 210, 214, 220, 222, 223, 226, 232, 234, 243, 246, 247, 248, 249, 260, 262, 263, 264, 265, 266, 267
Asian Studies 211, 212, 240
Chinese 251, 252
Classics 130, 146, 150, 204, 205, 206, 211, 220, 222, 224, 236, 238
Communication Studies 223, 224, 235, 242
Earth and Environmental Sciences 205
Economics 224, 267, 288
Education 2060
English 118W, 246, 260, 263, 265, 267, 268A, 268B, 271, 275, 277, 279W, 282
European Studies 201
Film Studies 133, 211, 235
French 209, 210, 215, 218, 234, 239, 251, 255, 258, 261, 269
German 172, 201W, 216, 221, 222, 235, 237, 241, 270, 271, 273, 274, 275
Greek 212
History 105, 106, 107, 108, 109, 127, 128, 137, 138, 143, 144, 149, 160, 161, 176, 183, 184, 202, 203, 205, 206, 209, 210, 213, 222, 223, 231, 234, 241, 243W, 244, 245, 246, 247, 249, 250, 251, 253A, 257, 258, 259, 260, 262, 263, 264, 268, 269, 280, 281, 282, 283
History of Art 120, 222, 238, 241, 242, 245, 252, 253, 255, 256
Human and Organizational Development 2240, 2400, 2410, 2420, 2430, 2460, 2660
Italian 230
Jewish Studies 120, 121, 135W, 155, 156, 245, 250, 251, 252, 253W, 254, 255
Latin 206, 215
Latin American Studies 201, 260
Medicine, Health, and Society 201
Music Literature 103, 148, 149, 151, 153, 171, 183, 200, 201, 250, 261, 262
Philosophy 103, 211, 235, 238, 252, 258, 261, 262, 263
Political Science 101, 102, 204, 205, 206, 208, 213, 214, 215, 216, 217, 218, 219, 228, 230, 247, 263
Portuguese 225
Psychology—Peabody 2230
Religious Studies 107, 110W, 112, 113, 130, 204W, 206, 219, 220W, 222, 223, 229, 230, 249, 251, 254
Russian 171, 172, 231, 232, 234
Sociology 101, 102, 103, 104, 218, 224, 230, 234, 237, 239, 246, 248, 249, 251, 254, 255, 256, 257, 267, 268, 272, 276, 277, 279
Spanish 202, 204, 208, 221, 226, 231, 235, 243, 244
Special Education 2060
Theatre 216
Women's and Gender Studies 150, 201, 212, 226, 240, 243, 267, 268, 269, 270, 271, 272

SOCIAL SCIENCE. *(6 hours)*
United States History *(3 hours)*
History 139, 140, 141, 142, 143, 144, 166, 169, 173, 174, 258, 259, 261, 262, 263, 264, 265, 269, 270, 271
Required Social Science course *(3 hours)*
Psychology 1630

LIBERAL CORE ELECTIVE. *16-17 hours.* Any non-education course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES. Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

WRITING REQUIREMENT

All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

NOTE: First-Year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open to further enrollment.

Professional Education Core. 28 hours.

EDUC 1020, 2215, 2217, 2270, 2430; MTED 2250; SCED 2250; SSED 2210; HMED 2250; SPED 1010; PSY 2310

Field Experiences. 15 hours.

EDUC 2210, 2216, 2250, 2290, 2701

An approved second major is required.

Teacher Placement in Cambridge

Students who major in early childhood or elementary education are required to complete a semester-long teacher placement. Students may apply to fulfill part of this requirement in Cambridge, England, during the summer before their senior year.

Information about teacher placement in Cambridge is available from the Department of Teaching and Learning.

Secondary Education

THE major in secondary education is designed to prepare the student to teach one or more subjects at the secondary level (grades 7–12). Students must complete Liberal Education Core requirements, Professional Education requirements, and a primary area of emphasis in at least one endorsement field, which involves 27 to 36 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 (7–12 Licensure)

Liberal Education Core Requirements. Minimum 60 hours.

COMMUNICATIONS. *(6 hours)* to include:
Required (3 hours): Education 2520
Communications Elective (3 hours) from the following:
Communication Studies: All CMST courses, except 289 and above)
English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W
Theatre 100, 115F

HUMANITIES *(9 hours)* to include:
Two fields required from:
African American and Diaspora Studies 260
Arabic 210B
Art Studio 101 and above (except 288 and above)
Chinese 202, 211, 212, 241, 242, 251, 252
Classical Studies 115F, 130, 146, 150, 204, 205, 206, 224
English (If the course selected has not been used to satisfy the Communications area) 102W, 104W, 105W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
Film Studies 125
French 102 and above (except 287A and above)
German 102 and above (except 289A and above)
Greek 202 and above (except 289)
Hebrew 111b and above (except 289A and above)
History of Art 110 and above (except 288 and above)
Italian 101b and above (except 289 and 294)
Japanese 202 and above (except 289A and 289B)
Jewish Studies 135W, 253W
Latin 102 and above (except 289)
Music Composition 100 and above (except 294 and above)
Music Literature 103 and above (except 147, 160, 171, 289 and above)
Philosophy 100 and above (except 289A and 289B and 294)
Portuguese 102 and above (except 289 and 294)
Religious Studies 107 and above (except 280 and above)
Russian 102 and above (except 171, 172, 289A and above)
Spanish 102 and above (except 280, 289, 294 and above)
Theatre 100, 201, 202, 203, 204, 232
Women's and Gender Studies 150, 271

MATHEMATICS *(6 hours)* (Two courses):
Mathematics 127A, 127B, 140, 150A, 150B, 155A, 155B, Psy 2101
NOTE: SAT II Math Test Score Level I of 620 and above or Level II of 570 and above will satisfy one of the two course mathematics requirement. Academic credit is not awarded for SAT II test scores. Students with SAT II Math course exemption should take three additional elective Liberal Education Core hours.

NATURAL SCIENCE *(7 hours)* to include:
One lab science *(4 or 5 hours)* from:
Astronomy 102 and 103
Biological Sciences 100 and 101A, 105, 110A and 111A, 110B and 111B, 118, 218, 219
Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
Earth and Environmental Sciences 101 and 111,102, 103 and 113, 225
Nursing 150, 210A, 210B
Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B
And
One of the following *(3 hours):*
Astronomy 102, 201, 203, 205
Biological Sciences 110A, 110B
Chemistry 101A
Earth and Environmental Sciences 101, 103, 107, 108, 114W
Neuroscience 201
Nursing 231A and 231B
Physics 110
Or two lab science courses (8-10 hours) will meet the Natural Science requirement.

CULTURAL STUDIES. *(3 hours)*
One course from the following;
African American and Diaspora Studies: 101, 110, 120, 155, 200, 201, 210, 215, 221, 230, 260
American Studies 100, 100W
Anthropology 101, 103, 206, 207, 210, 214, 220, 222, 223, 226, 232, 234, 243, 246, 247, 248, 249, 260, 262, 263, 264, 265, 266, 267
Asian Studies 211, 212, 240
Chinese 251, 252
Classics 130, 146, 150, 204, 205, 206, 211, 220, 222, 224, 236, 238
Communication Studies 223, 224, 235, 242
Earth and Environmental Sciences 205
Economics 224, 267, 288
Education 2060
English 118W, 246, 260, 263, 265, 267, 268A, 268B, 271, 275, 277, 279W, 282
European Studies 201
Film 211
French 209, 210, 215, 218, 234, 239, 251, 255, 258, 261, 269
German 172, 201W, 216, 221, 222, 235, 237, 241, 270, 271, 273, 274, 275
Greek 212
History 105, 106, 107, 108, 109, 127, 128, 137, 138, 143, 144, 149, 160, 161, 176, 183, 184, 202, 203, 205, 206, 209, 210, 213, 222, 223, 231, 234, 241, 243W, 244, 245, 246, 247, 249, 250, 251, 253A, 257, 258, 259, 260, 262, 263, 264, 268, 269, 280, 281, 282, 283
History of Art 120, 222, 238, 241, 242, 245, 252, 253, 255, 256
Human and Organizational Development 2240, 2400, 2410, 2420, 2430, 2460, 2660
Italian 230
Jewish Studies 120, 121, 135W, 155, 156, 245, 250, 251, 252, 253W, 254, 255
Latin 206, 215
Latin American Studies 201, 260
Medicine, Health, and Society 201
Music Literature 103, 148, 149, 151, 153, 171, 183, 200, 201, 250, 261, 262
Philosophy 103, 211, 235, 238, 252, 258, 261, 262, 263
Political Science 101, 102, 204, 205, 206, 208, 213, 214, 215, 216, 217, 218, 219, 228, 230, 247, 263
Portuguese 225
Psychology—Peabody 2230
Religious Studies 107, 110W, 112, 113, 130, 204W, 206, 219, 220W, 222, 223, 229, 230, 249, 251, 254
Russian 171, 172, 231, 232, 234
Sociology 101, 102, 103, 104, 218, 224, 230, 234, 237, 239, 246, 248, 249, 250, 251, 254, 255, 256, 257, 267, 268, 272, 276, 277, 279
Spanish 202, 204, 208, 221, 226, 231, 235, 243, 244
Special Education 2060
Theatre 216
Women's and Gender Studies 150, 201, 212, 226, 240, 243, 267, 268, 269, 270, 271, 272

SOCIAL SCIENCE. *(6 hours)*
United States History *(3 hours)*
History 139, 140, 141, 142, 143, 144, 166, 169, 173, 174, 258, 259, 261, 262, 263, 264, 265, 269, 270, 271
Required Social Science course *(3 hours)*
Psychology 2320

LIBERAL CORE ELECTIVE. *(23 hours)* Any non-education course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES. Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

WRITING REQUIREMENT
All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

NOTE: First-Year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open to further enrollment.

Professional Education Core. 21 hours.
EDUC 1020, 2310, 2520, 2920; SPED 1010; Literacy course; Teaching Methods course

Field Experiences. 15 hours.
EDUC 2340, 2350, 2360; EDUC 2292, 2703

An approved second major is required.

Major in Human and Organizational Development

CHAIR Marybeth Shinn
ASSOCIATE CHAIR William L. Turner
DIRECTOR OF UNDERGRADUATE STUDIES Paul W. Speer
PROFESSORS EMERITI Joseph J. Cunningham, Paul R. Dokecki, Robert B. Innes
PROFESSORS OF THE PRACTICE, EMERITA Vera A. Stevens Chatman, Janet S. Eyler
PROFESSORS Sandra Barnes, John M. Braxton, Robert L. Crowson, Jr., Ellen B. Goldring, Craig Anne Heflinger, Stephen P. Heyneman, Velma McBride Murry, Joseph F. Murphy, Douglas D. Perkins, Marybeth Shinn, William L. Turner
RESEARCH PROFESSOR Mark Lipsey
PROFESSOR OF THE PRACTICE Sharon L. Shields
ASSOCIATE PROFESSOR EMERITUS Richard L. Percy
ASSOCIATE PROFESSORS Dale Ballou, Mark D. Cannon, James Fraser, Maury Nation, Thomas M. Smith, Paul W. Speer
ASSOCIATE PROFESSOR OF THE PRACTICE Andrew J. Finch,
ASSISTANT PROFESSORS Kimberly D. Bess, William Doyle, Stella M. Flores, Christopher P. Loss
ASSISTANT CLINICAL PROFESSORS Victoria Davis, Brian A. Griffith
ASSISTANT PROFESSORS OF THE PRACTICE Gina L. Frieden, Leigh Gilchrist, Brian Heuser, Heather Smith, Sarah V. Suiter, Andrew Van Schaak
SENIOR LECTURER John A. Bachmann
LECTURERS Corbette Doyle, Susan K. Friedman, Allison P. McGuire, Kristen Tompkins

THE Human and Organizational Development major prepares students to solve human problems in organizations and communities. Doing so requires knowledge of human development, group dynamics, organizational theory and behavior, economics, public policy, statistics, and methods of inquiry. The curriculum is planned to ensure that students obtain a strong foundation in science and liberal arts, with an emphasis on developing writing, oral presentation, and analytic skills.

In addition to the core curriculum, students select a concentration or track that provides a focus for their study during the junior and senior years. The track options are Community Leadership and Development, Health and Human Services, International Leadership and Development, Leadership and Organizational Effectiveness, and Education Policy. Many students also add an additional major or minor which is handled through the respective departments of those programs.

The HOD program is guided by an active learning approach to education. Students learn new ideas and concepts through seminars, simulations, case studies, field experiences, and interaction with professionals in the field. In addition, students are required to complete a semester-long internship during which they demonstrate the core competencies of HOD: understanding and solving problems in organizations and communities. Through the coursework that accompanies the internship, students integrate and apply concepts from earlier classes to analyze organizational performance and complete a project that enhances the effectiveness of the organization. Because the student chooses the internship placement, this experience also provides valuable vocational and career development in the student's field of interest. Students can apply for internships in Nashville, Chicago, New York, San Francisco, Washington, D.C., and London, England.

Graduates of the program assume positions in business, government agencies, social enterprises, and non-profit organizations. In addition, many students enter graduate or professional programs in business, community development, counseling, divinity, education, health promotion, human resource development, law, or medicine.

The core curriculum is designed to help students:

1. Understand the basic principles and typical patterns of human development across the life cycle 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 settings;
3. Understand theories of organizations and apply them to the solution of organizational problems;
4. Apply quantitative and qualitative methods of systematic inquiry and analysis;
5. Understand basic economics including monetary and fiscal theory;
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, to appreciate diversity, and to design innovative programs.

In addition, the program helps students develop the following skills:

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 thinking* with emphasis on applying analysis, creative thinking, and the skills of systems thinking to the recognition, definition, and solution of personal, professional, organizational, and social problems;
4. *Interpersonal communication* with emphasis on inquiry, advocacy, and conflict resolution skills;
5. *Leadership* with emphasis on motivating others, managing talent, and teamwork.

Honors Program

The HOD Honors Program is is designed for highly motivated students who are looking for an opportunity to pursue intensive study in personal areas of interest. It offers outstanding undergraduate HOD majors an opportunity to undertake advanced reading and become involved in research teams with professors and graduate students. The program also offers special opportunities for individual supervision that will help students develop writing and presentation skills to compete successfully in the world's best graduate programs.

The program is open to students who have completed the sophomore year with a 3.6 cumulative (overall) GPA. Students

admitted to the honors program participate in advanced research for two semesters and completion of the honors thesis. Students are also encouraged to attend departmental colloquia and to take at least one graduate course in their area of interest.

Curriculum

Students take a minimum of 120 hours, distributed as follows. [See explanatory material above and program of studies work sheets (available in the Office of Undergraduate Academic Affairs) for slight variations.]

Liberal Education Core Requirements. 40 hours.

COMMUNICATIONS. *(6 hours)*
Communication Studies (All Communication Studies courses count except 289 and above)
English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W, 122, 123
Theatre 100, 115F

HUMANITIES. *(9 hours and two fields)* to include:
Philosophy *(3 hours):*
- All Philosophy courses (except 289AB and above) (105 is recommended)
- Political Science 203

Other Humanities courses *(6 hours)*
- African American and Diaspora Studies 260
- Arabic 210B and above
- Chinese 202, 211, 212, 241, 242, 251, 252
- Classical Studies 115F, 130, 146, 150, 204, 205, 206, 224
- Computer Science 151
- English (The same course may not count for both Communications and Humanities) 102W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
- Film Studies 125
- French 102 and above (except 287A and above)
- German 102 and above (except 289A and above)
- Greek 202 and above (except 289)
- Hebrew 111B and above (except 289A and above)
- History of Art 110, 111, 115F, 210 and above (except 288 and above)
- Italian 101B and above (except 289 and above)
- Japanese 202 and above (except 289AB)
- Jewish Studies 135W, 253W
- Latin 102 and above (except 289)
- Music MUSC 100 and above (except 294 and above); MUSL 103 and above (except 147, 160, 171, 289 and above)
- Philosophy 100 and above (except 289AB and above)
- Portuguese 102 and above (except 225, 289 and 294)
- Religious Studies 107 and above (except 280 and above)
- Russian 102 and above (except 171, 172, 280A and above)
- Spanish 102 and above (except 280, 289, 294 and above)
- Theatre 100, 115F, 201, 202, 203, 204, 232
- Women's and Gender Studies 150, 271

The Humanities Area cannot be met with three philosophy courses. Two different fields are required.

MATHEMATICS. *(6 hours)*
Statistics (3 hours):
- Economics 150
- *Or*
- Psychology 209, 2101

Mathematics *(3 hours)*
One of Mathematics 140, 150A, 150B, 155A, 155B

NATURAL SCIENCE. *(7 hours)*
One lab science *(4 or 5 hours)* from:
- Astronomy 102 and 103
- Biological Sciences 100 and 101, 105, 110A and 111A, 110B and 111B, 118, 218, 219
- Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
- Earth and Environmental Sciences 101 and 111, 102, 103 and 113, 225
- Nursing 150, 210A, 210B
- Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B
- *And*

One of the following *(3 hours):*
- Astronomy: 102, 201, 203, 205
- Biological Sciences 110A, 110B
- Chemistry 101A
- Earth and Environmental Sciences 101, 103, 106, 108
- Neuroscience 201
- Nursing 231A and 231B
- Physics 110

Or two lab science courses *(8-10 hours)* will meet the Natural Science requirement

SOCIAL SCIENCE. *(9 hours and two fields required)* to include:
Economics *(3 hours):*
- One course from Economics 100, 101, HOD 2260 (Economics 115F does not count in this area)

Other Social Science courses *(6 hours):*
- African American Studies 101, 155, 221, 230
- American Studies 100, 100W
- Anthropology (All regular Anthropology courses except 288A and above)
- Classical Studies 207, 208, 209, 212, 213
- Economics 100, 101, 226, 266, 271 (if not used for required Economics course)
- History (All regular History courses except 169, 293 and above)
- History of Art 255, 256
- Human and Organizational Development 2280, 2670
- Jewish Studies 156
- Music Literature/History MUSL 147, 160, 171
- Political Science 100 and above (except 280A and above)
- Psychology—A&S (All regular courses except 209, 222, 225, 231, 280 and above)
- Psychology—Peabody (All regular courses except 2101, 2102, 2510-2620, 2820, 2970 and above)
- Sociology (All regular Sociology courses except 280a and above)
- Women's and Gender Studies 226, 240, 243, 267, 268

LIBERAL CORE ELECTIVE. *3 hours.* Any course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES: Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

WRITING REQUIREMENT
All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

NOTE: First-Year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open.

Human and Organizational Development Professional Core. 17–22 hours.

These courses are listed in the Courses of Study section under Human and Organizational Development and will include the following topics:

Psychology 1630. Developmental Psychology*
HOD 1000. Applied Human Development
HOD 1001. Intrapersonal Development*
HOD 1100. Small Group Behavior
HOD 1101. Interpersonal Development*
HOD 1200. Understanding Organizations
HOD 1400. Talent Management and Organizational Fit
HOD 1700. Systematic Inquiry
HOD 1800. Public Policy

*not required for students who transfer to the HOD major

Practicum and Internship. 12–18 hours.

The program includes a full-time internship (12–15 hours) and an optional 3-hour practicum experience.

Track. 15 hours.

A block of courses within the student's area of concentration: (1) Community Leadership and Development, (2) Health and Human Services, (3) International Leadership and Development, (4) Leadership and Organizational Effectiveness, and (5) Education Policy.

Electives. 25–42 hours.

The Minor in Human and Organizational Development

The minor in human and organizational development consists of 18 hours in the following courses:

REQUIRED COURSES. *9 hours.*
HOD 1000. Applied Human Development (3)
HOD 1100. Small Group Behavior (3)
HOD 1200. Understanding Organizations (3)

ELECTIVE COURSES. *9 hours.*
9 hours at the 2000-level with either
All 9 hours in a given track

Community Leadership and Development Track
The 9-hour CLD track core requires three of the following five courses:

HOD 2280	Ethics for Human Development Professionals
HOD 2600	Community Development Theory
HOD 2610	Community Development Organizations and Policies
HOD 2620	Action Research and Program Evaluation
HOD 2670	Introduction to Community Psychology

Health and Human Services Track
The 9-hour HHS track core requires three of the following five courses:

HOD 2510	Health Service Delivery to Diverse Populations
HOD 2500	Introduction to Human Services
HOD 2505	Introduction to Counseling
HOD 2525	Introduction to Health Services
HOD 2535	Introduction to Health Policy

International Leadership and Development Track
The 9-hour ILD track core requires three of the following five courses:

HOD 2400	Global Dimensions of Community Development
HOD 2410	Leadership and Change in International Organizations
HOD 2420	International Organizations and Economic Development
HOD 2430	Education and Economic Development
HOD 2470	Effectiveness in International For-Profit Organizations

Leadership and Organizational Effectiveness Track
The 9-hour LOE track core includes the following required courses:

HOD 2700	Leadership Theory and Practice
HOD 2720	Advanced Organizational Theory

One course chosen from the following five options:

HOD 2715	Analyzing Organizational Effectiveness
HOD 2730	Introduction to Human Resource Development
HOD 2740	Human Resource Management
HOD 2745	Evidence-based Practice in Organizations
HOD 2750	Managing Organizational Change

Education Policy Track
The 9-hour EP track core has the following required courses:

HOD 2800	Education Policy Analysis Methods
HOD 2810	Education and Public Policy
HOD 2820	Introduction to Public Finance of Education

Or
Two of the five introductory track courses

HOD 2510. Health Service Delivery to Diverse Populations
HOD 2600. Community Development Theory *or*
HOD 2670. Introduction to Community Psychology
HOD 2400. Global Dimensions of Community Development
HOD 2700. Leadership Theory and Practice
HOD 2800. Education Policy Analysis Methods
And
One additional 3-hour HOD course

Major in Special Education

CHAIR Donald L. Compton
DIRECTOR OF UNDERGRADUATE STUDIES Andrea M. Capizzi,
PROFESSORS EMERITI Anne L. Corn, Joseph J. Cunningham, Carolyn Hughes, Mark Wolery
PROFESSORS Donald L. Compton, Donna Ford, Douglas Fuchs, Lynn S. Fuchs, Mary Louise Hemmeter, Robert Hodapp, Ann P. Kaiser, Daniel J. Reschly, Paul J. Yoder
RESEARCH PROFESSOR Ted Hasselbring
ASSOCIATE PROFESSORS Erik Carter, Laurie Cutting, Deborah D. Hatton, Joseph H. Wehby
ASSOCIATE PROFESSORS OF THE PRACTICE Kimberly J. Paulsen, Naomi Tyler
ASSISTANT PROFESSORS Erin Barton, Chris Lemons, Blair Lloyd, Victoria Knight
ASSISTANT PROFESSORS OF THE PRACTICE Karen Blankenship, Andrea M. Capizzi, Alexandra Da Fonte, Joseph M. Lambert
RESEARCH ASSISTANT PROFESSORS P. J. McWilliam, Tamra Stambaugh, Sandra Wilson, Zina Yzquierdo

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 three specialty areas: mild and moderate disabilities (modified program), multiple and severe disabilities (comprehensive program), or visual impairment. This major can be combined with other majors in education, human and organizational development, cognitive studies, child development, or 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 on 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 thesis. 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 3.2 and a 3.5 in their special education courses. 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 time and 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
Special Education

Specializations are available in mild to moderate disabilities (grades K–12 modified program), multiple and severe disabilities (grades K–12 comprehensive program), and visual impairment (grades PreK–12). Total hours will vary depending on the area of specialization.

Liberal Education Core Requirements. Minimum 60 hours.

COMMUNICATIONS. *(6 hours)*
3 hours from the following courses:
- English 102W, 104W, 105W, 115F, 116W, 117W, 118W, 120W
- Communication Studies (All Communication Studies courses except 289 and above)
- Theatre 100, 115F

And 3 hours from
- Special Education 2030 (if comprehensive or vision)
- Special Education 2840 (if modified)

HUMANITIES. *(9 hours)* to include:
Two courses *(6 hours)* from the following courses:
- African American and Diaspora Studies 260
- Arabic 201B and above
- Chinese 202, 211, 212, 241, 242, 251, 252
- Classical Studies 115F, 130,146, 150, 204, 205, 206, 224
- English (If the course selected has not been used to satisfy the Communications Area) 102W, 104W, 105W, 115F, 116W, 117W, 118W, 208A and above (except 269, 288 and above)
- Film Studies 125
- French 102 and above (except 287A and above)
- German 102 and above (except 289A and above)
- Greek 202 and above (except 289)
- Hebrew 111B and above (except 289A and above)
- Italian 101B and above (except 289 and 294)
- Japanese 202 and above (except 289AB)
- Jewish Studies 135W, 253W
- Latin 102 and above (except 289)
- Philosophy 100 and above (except 289AB and 294)
- Portuguese 102 and above (except 289 and 294)
- Religious Studies 107 and above (except 280 and above)
- Russian 102 and above (except 171, 172, 289A and above)
- Spanish 102 and above (except 280, 289, 294 and above)
- Theatre 100, 115F, 201, 202, 203, 204, 232
- Women's and Gender Studies 150, 271

Art or Music. *(3 hours)* from the following courses:
- Art Studio 101 and above (except 288 and above)
- Classical Studies 203, 204, 205, 206, 216, 217
- History of Art 110 and above (except 288 and above)
- Music Composition 100 and above (except 294 and above)
- Music Literature 103 and above (except 147, 160, 171, 289 and above)

MATHEMATICS. *(6 hours)* to include:
Statistics *(3 hours):*
Psychology 2101
Mathematics *(3 hours):*
SAT II Math Test Score Level I of 620 and up or Level II of 570 and up satisfy the 3 hour Math requirement; academic credit is not awarded for SAT II scores
Or
One course from:
Mathematics 140, 150AB, 155AB
Psychology 2102

NATURAL SCIENCE. *(7-8 hours)*
One lab science *(4 or 5 hours)* required from:
Astronomy 102 and 103
Biological Sciences 100 and 101A, 105, 110A and 111A, 110B and 111B, 118, 218, 219
Chemistry 101A and 100A, 101B and 100B, 102A and 104A, 102B and 104B
Earth and Environmental Sciences 101 and 111,102, 103 and 113, 225
Nursing 150, 210A, 210B
Physics 110 and 111, 116A and 118A, 116B and 118B, 121A, 121B
And
One of the following *(3 hours):*
Astronomy 102, 201, 203, 205
Biological Sciences 110A, 110B
Chemistry 101A
Earth and Environmental Sciences 101, 103, 107, 108, 114W
Neuroscience 201
Nursing 231A and 231B
Physics 110
Or
Two lab science courses *(8-10 hours)* will meet the Natural Science requirement.

CULTURAL STUDIES. *(3 hours)*
One course from the following:
African American and Diaspora Studies 101, 110, 120, 155, 200, 201, 210, 215, 221, 230, 260
American Studies 100, 100W
Anthropology 101, 103, 206, 207, 210, 214, 220, 222, 223, 226, 232, 234, 243, 246, 247, 248, 249, 260, 262, 263, 265, 266, 267, 264
Asian Studies 211, 240
Chinese 251, 252
Classics 130, 146, 150, 204, 205, 206, 211, 220, 222, 224, 236, 238
Communication Studies 223, 224, 235
Earth and Environmental Sciences 205
Economics 224, 267, 288
Education 2060
English 118W, 246, 260, 263, 268A, 268B, 271, 275, 277, 279W, 282
European Studies 201
French 209, 215, 218, 234, 239, 251, 255, 258, 261, 269
German 172, 201W, 216, 221, 222, 235, 237, 241, 270, 271, 273, 274, 275
Greek 212
History 105, 106, 107, 108, 109, 127, 128, 137, 138, 143, 144, 149, 160, 161, 176, 183, 184, 202, 203, 205, 206, 209, 210, 213, 222, 223, 231, 234, 241, 243W, 244, 245, 246, 247, 249, 250, 251, 253A, 257, 258, 259, 260, 262, 263, 264, 268, 269, 280, 281, 282, 283
History of Art 120, 222, 238, 241, 242, 245, 252, 253, 255, 256
Human and Organizational Development 2240, 2400, 2410, 2420, 2430, 2460, 2660
Italian 230
Jewish Studies 120, 121, 135W, 155, 156, 245, 250, 251, 252, 253W, 254, 255
Latin 206, 215
Latin American Studies 201, 260
Medicine, Health, and Society 201
Music Literature 103, 148, 149, 151, 153, 171, 200, 201, 250, 261, 262
Philosophy 103, 211, 235, 238, 252, 258, 261, 262, 263
Political Science 101, 102, 204, 205, 206, 208, 213, 214, 215, 216, 217, 218, 219, 228, 230, 247, 263
Portuguese 225
Psychology—Peabody 2230
Religious Studies 107, 110W, 112, 113, 130, 204W, 206, 219, 220W, 222, 223, 229, 230, 249, 251, 254
Russian 171, 172, 231, 232, 234
Sociology 101, 102, 103, 104, 218, 224, 230, 234, 237, 239, 246, 248, 249, 250, 251, 254, 255, 256, 257, 268, 272, 275, 277, 279
Spanish 202, 2024, 208, 221, 226, 231, 235, 243, 244
Special Education 2060
Theatre 216
Women's and Gender Studies 150, 201, 212, 226, 240, 243, 267, 268, 269, 270, 271, 272

SOCIAL SCIENCE. *(18 hours)* to include:
United States History (3 hours) from the following courses
History 139, 140, 141, 142, 143, 144, 166, 169, 173, 174, 258, 259, 261, 262, 263, 264, 265, 269, 270, 271
Other Required Social Science courses *(15 hours):*
Education 1020
Psychology 1630, 2310
Special Education 1010
Special Education 2020 (if comprehensive or vision); 2060 (if modified)

LIBERAL CORE ELECTIVE. *(10-11 hours)*
Any non-education course listed to satisfy any area of the Liberal Education Core that is not already being used to fulfill a core area.

NOTES: Special topic courses are not ordinarily acceptable to meet liberal education core requirements. These courses require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Courses chosen to fulfill an area of the Liberal Education Core can only be used to satisfy that one requirement. You may not use the same course for two requirement areas. Exception: Courses used to fulfill the Writing Requirement may also be used to satisfy the appropriate Liberal Education Core area.

WRITING REQUIREMENT.
All Peabody College freshmen who have not earned a combined score of 1220 on the Writing and Critical Reading components of the SAT with a minimum score of 500 in each component, or ACT English score of 27 or higher and writing score of 7 or higher, or AP or IB English scores above 4 and 6 respectively, are required to successfully complete English 100. Regardless of AP or IB credits, all freshmen must successfully complete one writing-intensive course at the 100 level before their fourth semester. Writing-intensive courses either have a "W" after the course number (A&S courses) or end with the digit "7" (Peabody courses). In addition, before graduation all students must successfully complete a second writing-intensive course at the 100 or 200 level.

NOTE: First-Year Seminars (courses labeled 115F) 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 during the first week of the fall and spring semesters if the courses are open.

SPECIALIZATIONS.
The following SPED course is taken as part of the Liberal Education Core, but is also required in each area of specialization.

SPED 1010. Introduction to Exceptionality

The following courses are required in each area of specialization.

SPED 1000. Freshman Seminar
SPED 2010. Introduction to Teaching Students with Disabilities
SPED 2110. Managing Academic and Social Behavior
SPED 2111. Practicum: Management
or SPED 2801 (modified)
or SPED 2311 (comprehensive)
SPED 2870. Accommodating Academic Diversity in the Classroom
SPED 2871. Practicum: Accommodating Academic Diversity in the Classroom
SPED 2900. Professional Seminar
SPED 2901 or 2911. Student Teaching

COMPREHENSIVE PROGRAM CORE.
SPED 2020. Issues in Family Intervention*
SPED 2030. Introduction to Language and Communication*
SPED 2050. Augmentative and Alternative Communication
SPED 2300. Methods of Instruction for Multiple Disabilities
SPED 2311. Field Work in Special Education for Severe/Multiple Disabilities (taken twice, tied to course work—one Fall and one Spring)
SPED 2330. Characteristics of Students with Severe and Multiple Disabilities
SPED 2340. Procedures in Transition to Adult Life
SPED 2350. Access to General Education and Teaching Functional Academics
SPED 2820. Teaching Math to Students with Disabilities

MODIFIED PROGRAM CORE.
EDUC 2215. Theory and Methods of Reading Instruction in Elementary Schools
SPED 2800. Characteristics of Students with High-Incidence Disabilities
SPED 2801. Field Work in Special Education for Mild to Moderate Disabilities (taken twice, tied to course work—one Fall and one Spring)
SPED 2810. Assessment Strategies for Students with Disabilities
SPED 2820. Teaching Math to Students with Disabilities
SPED 2830. Teaching Reading to Students with Disabilities
SPED 2840. Oral and Written Language
SPED 2860. Procedures in Classroom Management and Collaboration with Families for Students with Mild/Moderate Disabilities

VISUAL IMPAIRMENT PROGRAM CORE.
SPED 2020. Issues in Family Intervention*
SPED 2030. Introduction to Language and Communication*
SPED 2500. Medical and Educational Implications of Visual Impairment
SPED 2510. Educational Procedures for Students with Visual Impairment
SPED 2530. Braille Reading and Writing
SPED 2540. Communication Skills for Students with Visual Impairment
SPED 2550. Orientation and Mobility for Teachers of the Visually Impaired
SPED 2580. Advanced Procedures for Students with Visual Impairments
SPED 2810. Assessment for Students with Disabilities
SPED 2811. Practicum: Assessment
SPED 2820. Teaching Math to Students with Disabilities
SPED 2821. Practicum: Teaching Math

*Taken as part of the Liberal Education Core

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 18 hours as detailed below.

Required for all tracks (3 hours)
SPED 1010. Introduction to Exceptionality (3)

Choice of track (15 hours): Remaining hours are drawn from one of the four tracks below:

Teaching Students with High Incidence Disabilities (15 hours)
SPED 2010. Introduction to Teaching Students with Disabilities (3)
SPED 2110. Managing Academic and Social Behavior (3)
SPED 2801. Field Work in Special Education (3)
SPED 2820. Teaching Mathematics to Students with Disabilities (3)
SPED 2830. Teaching Reading to Students with Disabilities (3)

Teaching Students with Intellectual and Multiple Disabilities (15 hours)
SPED 2020. Family Intervention (3)
SPED 2030. Introduction to Language and Communication (3)
SPED 2311. Field Work in Special Education (3)
SPED 2330. Characteristics of Students with Severe and Multiple Disabilities (3)
Choice of
SPED 2340. Procedures in Transition to Adult Life (3)
Or
SPED 2350. Access to General Education and Teaching Functional Academics (3)
And choice of one of the following:
SPED 2110. Managing Academic and Social Behavior (3)
SPED 2340. Procedures in Transition to Adult Life (3)

Teaching Students with Visual Impairments (14 hours)
SPED 2500. Medical and Educational Implications of Visual Impairments (3)
SPED 2510. Educational Procedures for Students with Visual Impairments (3)
SPED 2530. Braille Reading and Writing (2)
SPED 2540. Communication and Literacy Skills for Students with Visual Impairments (3)
SPED 2580. Advanced Procedures for Students with Visual Impairments (3)

Overview of Special Education (Choose 15 hours from the following courses)
SPED 2010. Introduction to Teaching Students with Disabilities (3)
SPED 2030. Introduction to Language and Communication (3)
SPED 2060. Cultural Diversity in American Education (3)
SPED 2110/2801. Managing Academic and Social Behavior/Field Work (3/1)
SPED 2330/2311. Characteristics of Students with Severe and Multiple Disabilities/Field Work (3/1)
SPED 2500. Medical and Educational Implications of Visual Impairments (3)
SPED 2810/2801. Assessment Strategies for Students with Disabilities/Field Work (3/1)
SPED 2840. Oral and Written Language (3)

Honors

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 year's Vanderbilt graduating seniors.

Magna Cum Laude. Students whose grade point average equals or exceeds that of the next 8 percent of the previous year's Vanderbilt graduating seniors.

Cum Laude. Students whose grade point average equals or exceeds that of the next 12 percent of the previous year's Vanderbilt 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 Epsilon

Kappa Delta Epsilon is an honorary professional education society established in 1935 in Georgia. Kappa Delta Epsilon recognizes outstanding students preparing to enter teaching or related professions. The professional qualifications of members include appreciation of subject matter, ability to provide important contributions to selected professions, and scholarship. Membership is limited to sophomores, juniors, and seniors with a 3.000 or better grade point average.

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

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.

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.

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.

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.

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.

YOUNG ALUMNI BOARD AWARD. Awarded by Peabody students to a senior who has demonstrated outstanding qualities of scholarship, leadership, and commitment of service to others. The recipient of this award represents the graduating class as a member of the alumni board for a two-year term.

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 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.

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.

SPECIAL EDUCATION TEACHER OF EXCELLENCE 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.

Post-Baccalaureate Programs

PEABODY offers professional degree programs in the following areas. Details of the post-baccalaureate programs are published in the *Peabody College Catalog,* available on request from the Office of Admissions and Records at Peabody College.

Major	*Degree*	*Department*
Child Studies	M.Ed.	Psychology and Human Development
Community Development and Action	M.Ed.	Human and Organizational Development
Education Policy	M.P.P.	Leadership, Policy, and Organizations
Educational Leadership and Policy	Ed.D.	Leadership, Policy, and Organizations
Elementary Education	M.Ed.	Teaching and Learning
English Language Learners	M.Ed.	Teaching and Learning
Higher Education Administration	M.Ed.	Leadership, Policy, and Organizations
Higher Education Leadership and Policy	Ed.D.	Leadership, Policy, and Organizations
Human Development Counseling	M.Ed.	Human and Organizational Development
International Education Management and Policy	M.Ed.	Leadership, Policy, and Organizations
Leadership and Organizational Performance	M.Ed.	Leadership, Policy, and Organizations
Learning and Instruction	M.Ed.	Teaching and Learning
Learning, Diversity, and Urban Studies	M.Ed.	Teaching and Learning
Reading Education	M.Ed.	Teaching and Learning
Secondary Education	M.Ed.	Teaching and Learning
Special Education	M.Ed.	Special Education

Five-year Programs at Peabody

The five-year programs offered by Peabody College are designed to blend the undergraduate program with the master's level program. Students who successfully complete one of these combined programs will earn their undergraduate B.S. degrees and also earn their M.Ed. degrees by the end of their fifth year at Peabody.

Under the combined five-year plan, undergraduates take 6 credit hours of professional courses during the senior year as part of the 120 hours required for the B.S. degree. A fifth year (including summer) follows, during which students complete the additional 30 professional hours necessary for the master's degree. Each of the master's programs listed below requires 36 hours in total. Students in these five-year programs may take 6 hours during the senior year. Students who plan to pursue a five-year program are required to abide by the following guidelines; admission is competitive, and meeting minimum requirements does not guarantee admission.

- Students should make application to the program by the end of the junior year at Vanderbilt.
- Applicants must have earned a minimum 3.00 grade point average.
- Applicants are required to score a minimum of 1000 on the GRE (verbal + quantitative).
- Courses may not be transferred from another university as a part of the master's degree.

Leadership and Organizational Performance

The master's program in Leadership and Organizational Performance (LOP) prepares professionals who understand the social and organizational frameworks in which human performance, communication, change, learning, and development take place and who can lead, influence, and implement those frameworks at the highest levels of organizational effectiveness. The core curriculum includes the application of theory and practice in the areas of leadership, organizational theory and behavior, human performance improvement, learning organizations, strategy, analytics, and program evaluation. The teaching, cases, and exercises place the student in the role of leader who needs to strategize, plan, organize, make decisions, mobilize resources, and execute.

The LOP program prepares individuals to perform as leaders who promote organizational performance, talent management, and employee engagement by directing, facilitating, and implementing individual, group, and organizational effectiveness initiatives. The LOP program prepares students to:

- Diagnose, analyze, and evaluate how leadership and learning impact organizational performance, effectiveness, and outcomes;
- Lead, influence, design, and implement various organizational effectiveness initiatives;
- Build knowledge and skills in leadership practices;
- Value and recognize how employees learn and develop in the workplace;
- Develop competencies to manage an organization's human capital as it relates to various functions, talent development, and organizational effectiveness.

The program includes a structured internship experience and culminates in a comprehensive examination of one's knowledge and competence of leadership and organizational performance.

The program attracts those who desire the development and use of their leadership abilities in many different organizational settings including for-profit, non-profit, education, and government agencies. Students graduating from the program are employed as managing partners of global human capital, operations leaders, directors of educational programs, curricula, and student affairs, organizational effectiveness directors, non-profit executives, human capital analysts/consultants, performance and organization development consultants, executive leadership program directors, human resource generalists, learning managers, instructional designers, and change management and communication leads.

Higher Education Administration

HEA programs prepare professionals to work in a variety of college and university administrative and student affairs positions. Two of the specializations in this program are particularly suitable for HOD students seeking a fifth-year master's degree.

Student Affairs

Student Affairs graduates are prepared for positions in student housing, Greek life, multicultural affairs, international student services, dean of students offices, or admissions.

Service-Learning

The program specialization in Service-Learning in Higher Education is designed for students with a strong interest in combining their commitment to service with a career in higher education. The degree is designed to prepare students for roles as directors of service-learning centers on campuses, to fill student services positions which include responsibilities for community service, or to act as liaison between faculty and community in academic service-learning programs.

Peabody College Courses

Human and Organizational Development

HOD 1000. Applied Human Development. 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. Corequisite for freshman H&OD majors: HOD 1001. [3]

HOD 1001. Intrapersonal Communication. The course is designed for first semester freshmen. It includes exploration and clarification of values, setting personal objectives, and preliminary skill building in active listening, assertiveness, and conflict resolution. HOD 1001 is a course for freshman H&OD majors only. Corequisite: HOD 1000. [1]

HOD 1100. Small Group Behavior. 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. Corequisite for freshman H&OD majors: HOD 1101. [3]

HOD 1101. Interpersonal Communication. This course is designated for second-semester freshmen with an H&OD major. It provides skill development in interpersonal communication and group dynamics. Corequisite: HOD 1100 section one. [1]

HOD 1150. First-Year Seminar. Selected topics for first-year students [3]

HOD 1200. Understanding Organizations. Introduction to theory and research on human behavior in organizations. Aimed at providing a framework for understanding the dynamics of organizations around the basic issues that confront all organizations (e.g., goal setting, work performance, leadership, decision making, managing change). [3]

HOD 1400. Talent Management and Organizational Fit. This course examines the theories, concepts, tools, and processes associated with talent management and synergistic organizational fit. Given that organizations recognize that employee talents, skills, and motivations drive organizational performance and success, students will explore the theories, concepts, and processes organizations use to plan, source, attract, select, train, monitor, develop, retain, promote, and move employees through the organization. It expounds upon the theories from earlier coursework (HOD 1000, 1100, and 1200) and provides a deeper understanding of organizational performance and HR/talent, strategy, and core competency alignment issues. Outcomes from this course are applied and built upon in the HOD capstone internship experience. [3]

HOD 1690. Commons Seminar. 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. [1]

HOD 1700. Systematic Inquiry. Focuses on ways of knowing and gathering information to improve understanding and solve problems. Topics include focusing on a research question, research design, program evaluation techniques, and quantitative and qualitative methodologies. [3]

HOD 1800. Public Policy. An exploration of the foundations of public policy, the policy process, and the factors that influence policy making at the national and state levels, with particular attention to the development of student analytic and writing skills. Prerequisite: HOD 1700. [3]

HOD 2000. Practicum in Human and Organizational Development. An intensive practicum experience. Three contact hours per week required for each credit hour. [1–3]

HOD 2040. Practicum in International Leadership and Development. An intensive practicum experience. Three contact hours per week required for each credit hour. [1–3]

HOD 2050. Practicum in Health and Human Services. An intensive practicum experience. Three contact hours per week required for each credit hour. [1–3]

HOD 2060. Practicum in Community Leadership and Development. An intensive practicum experience. Three contact hours per week required for each credit hour. [1–3]

HOD 2070. Practicum in Leadership and Organizational Effectiveness. An intensive practicum experience. Three contact hours per week required for each credit hour. [1–3]

HOD 2080. Practicum in Public Policy. An intensive practicum experience. Three contact hours per week required for each credit hour. [1–3]

HOD 2240. Multicultural Issues in Contemporary Society. This course broadly examines multiracial and multicultural issues so that students from a variety of disciplines will be able to benefit from the contents. The intent of the course, which draws on anthropological, educational, and organizational literature from a variety of popular readings, is to provide approaches, procedures, and techniques for gaining insight and understanding into different racial and cultural groups in order to promote acceptance of diversity in various environments, such as the classroom, or profit-making or nonprofit organizations. [3] (Not currently offered)

HOD 2260. Economics of Human Resources. 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. [3]

HOD 2280. Ethics for Human Development Professionals. (Also listed as PSY 2890) 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]

HOD 2290. Special Topics in Human and Organizational Development. Exploration of special issues on topics related to human and organizational development. May be repeated for credit with change of topic. [1–3]

HOD 2400. Global Dimensions of Community Development. 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]

HOD 2410. Leadership and Change in International Organizations. 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]

HOD 2420. International Organizations and Economic Development. 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]

HOD 2430. Education and Economic Development. 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]

HOD 2440. International Innovations in K-12 Policy Reform. Schooling is now compulsory throughout the world, but rarely are the resources sufficient to fund it adequately. Schooling in democracies takes on similar characteristics in the effort to respond to the public's open demands. This course reviews the policy changes of school systems in meeting these two challenges. The course concentrates on Western Europe, but expands to Asia, Africa, Latin America, the Middle East, North Africa, and Central Asia depending on student interest. [3]

HOD 2445. Education in the Asia-Pacific Region: Development, Reform, and Innovation. 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]

HOD 2450. Building Knowledge Economics in Asia. 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]

HOD 2460. Fieldschool in Intercultural Education. 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]

HOD 2470. Effectiveness in International For-profit Organizations. 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]

HOD 2480. International Leadership and Development Seminar. 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]

HOD 2490. Special Topics in International Leadership and Development. Exploration of special topics related to international leadership and development. May be repeated for credit with change of topic. [1–3]

HOD 2500. Introduction to Human Services. 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]

HOD 2505. Introduction to Counseling. 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]

HOD 2510. Health Service Delivery to Diverse Populations. 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]

HOD 2520. Communications Skills for Health and Human Service Professions. This course focuses on a conceptual model for interpersonal effectiveness. Topics include training in listening skills, assertiveness skills, and conflict resolution. The course material will be presented in a manner that facilitates personal growth and also provides tools which contribute to professional growth. The format will be highly experiential. [3] (Not currently offered)

HOD 2525. Introduction to Health Services. 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]

HOD 2530. Introduction to Health Promotion. 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]

HOD 2535. Health Policy. 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]

HOD 2540. Introduction to Sports Medicine. Current topics in sports medicine, with an emphasis on prevention, management, and rehabilitation, and administrative aspects of sports medicine. [3] (Not currently offered)

HOD 2550. Managing Health Care Organizations. 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: HOD 2500 or HOD 2525. [3]

HOD 2580. Health and Human Services Seminar. 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]

HOD 2590. Special Topics in Health and Human Services. Exploration of selected topics related to health and human services. May be repeated for credit with change of topic. [1–3]

HOD 2600. Community Development Theory. 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]

HOD 2610. Community Development Organizations and Policies. 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]

HOD 2620. Action Research and Program Evaluation. 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]

HOD 2630. Proposal Preparation. Writing grants involves the application of skills in communication, program planning, evaluation, analytic methods, finance, and management. This course will focus on building upon those skills to prepare and critique grant applications, with a primary emphasis on prospective federal, state, local, and foundation support. [3]

HOD 2640. Procedures in Transition to Adult Life. (Also listed as SPED 2340) 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. Corequisite: HOD 2641. [3]

HOD 2641. Practicum: Transition to Adult Life. (Also listed as SPED 2341) Field-based application of correlated course content to instructional strategies. Assessing, planning, implementing, and evaluating instructional procedures for community and employment integration. Corequisite: HOD 2640. [1]

HOD 2650. Religious and Spiritual Organizations. 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]

HOD 2660. Latin America, Latinos, and the United States. (Also listed as LAS 260) 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]

HOD 2665. High Poverty Youth: Improving Outcomes. (Also listed as SPED 2080) 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]

HOD 2670. Introduction to Community Psychology. (Also listed as PSY 2470) 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]

HOD 2680. Community Leadership and Development Seminar. 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]

HOD 2690. Special Topics in Community Leadership and Development. Exploration of special issues on topics related to community leadership and development. May be repeated for credit with change of topic. [1–3]

HOD 2700. Leadership Theory and Practice. 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 1200. [3]

HOD 2710. Challenges of Leadership. This course is designed as an extension of the study of leadership theory and practices begun in HOD 2700. Provides opportunities to investigate leadership concepts introduced in HOD 2700 in more depth. Prerequisite: HOD 2700. [3]

HOD 2715. Analyzing Organizational Effectiveness. 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]

HOD 2720. Advanced Organizational Theory. 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 1200. [3]

HOD 2730. Introduction to Human Resource Development. 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. Prerequisite: HOD 1200. [3]

HOD 2740. Human Resource Management. 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. Prerequisite: HOD 1200. [3]

HOD 2745. Evidence-based Practice in Organizations. 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. [3]

HOD 2750. Managing Organizational Change. 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: HOD 2700 or 2720. [3]

HOD 2755. Strategic Planning and Project Management. 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. Prerequisite: HOD 1200. [3]

HOD 2760. Creativity and Entrepreneurship. This course provides advanced students of organizations with an understanding of entrepreneurship by encouraging thinking "outside the box." It is designed to teach students how to create their own businesses, to live and work outside the "bureaucracy," to think creatively, to dream about new ideas and new ventures, and to appreciate the challenges to entrepreneurial thinking and acting. Prerequisite: HOD 1200. [3] (Not currently offered)

HOD 2770. Executive Leadership. 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]

HOD 2780. Leadership and Organizational Effectiveness Seminar. 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]

HOD 2790. Special Topics in Leadership and Organizational Effectiveness. 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. Prerequisite: HOD 1200. [3]

HOD 2800. Education Policy Analysis Methods. 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 1800 or PSCI 100. [3]

HOD 2810. Education and Public Policy. 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 1800 or PSCI 100. [3]

HOD 2820. Introduction to Public Finance of Education. 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]

HOD 2830. Reforming America's Schools. An in-depth examination of the challenges facing public education in the United States and the reforms that are reconfiguring the nation's elementary and secondary schools. Students explore the status and problems of American education, contexts of school reform, recent federal and state policy initiatives, and school restructuring. [3]

HOD 2840. Operation of Public Agencies. Examines the operation of public agencies within the American political system, with particular attention to federal and state agencies and consideration of local agencies. This is a seminar which focuses on discussion of readings and of current administrative issues identified by the instructor and students. Prerequisite: HOD 1800 or PSCI 100. [3]

HOD 2850. State and Local Government. 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 1800 or PSCI 100.

HOD 2880. Seminars in Public Policy. Exploration of special issues related to the public policy track of the Human and Organizational Development program. May be repeated for credit with change of topic. [3]

HOD 2890. Special Topics in Public Policy. Exploration of selected topics related to public policy. May be repeated for credit with change of topic. [1–3]

HOD 2900. Human Development Internship. An intensive work experience which involves working four days a week for one semester. The internship includes completion of a specific project for the organization. Corequisite: HOD 2910, 2920, 2930. [3-6]

HOD 2910. Advanced Seminar in Human and Organizational Development. Provides an opportunity to integrate human development theory, knowledge, and skills by applying them to the solution of problems in internship settings. Corequisite: HOD 2900, 2920, 2930. [3]

HOD 2920. Theoretical Applications of Human and Organizational Development. Students complete assignments and structured activities that demonstrate their ability to apply theories and skills acquired in the six Human Development program core courses to understanding situations and solving problems that naturally occur during their internship experience. Must be taken in conjunction with the Human and Organizational Development program internship. Corequisite: HOD 2900, HOD 2910, HOD 2930. Prerequisite: HOD 1000, 1100, 1200, 1400, 1700, 1800. [3]

HOD 2930. Senior Project. Students complete a specific project or assemble a portfolio that demonstrates their professional competence in their area of specialization. The portfolio includes written products and a videotape oral presentation on a topic appropriate to the student's area of specialization. [3]

HOD 2940. Honors Capstone Internship. Students admitted to the Human and Organizational Development Honors Program may complete a capstone internship. [3]

HOD 2960. Senior Thesis. [3]

HOD 2980. Readings and Research for Undergraduates. 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]

HOD 2984. Readngs and Research in International Leadership and Development. 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]

HOD 2985. Readings and Research in Health and Human Services. 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]

HOD 2986. Reading and Research in Community Leadership and Development. 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]

HOD 2987. Readings and Research in Leadership and Organizational Effectiveness. 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]

HOD 2988. Readings and Research in Public Policy. Individual programs of reading or the conduct of research studies in public policy. Consent of supervising faculty member required. May be repeated. [1–3]

HOD 2989. Directed Research. Consent of supervising faculty member required. May be repeated. [1–3]

HOD 2990. Human and Organizational Development Honors Seminar. Open to students majoring in Human and Organizational Development who are admitted to the Honors Program. [3]

Military Science—Peabody

MS-PC 111. Leadership and Personal Development. (Formerly MS 111) 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 111A. Leadership and Personal Development Lab. (Formerly MS 111A) 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-PC 113. 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.). 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-PC 113A. 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]

MS-PC 150. Foundations of Leadership. 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-PC 150A. Foundations of Leadership Lab. This lab builds upon the classroom topics in MS 150 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 152. Foundations of Tactical Leadership. (Formerly MS 113) This course builds upon MS-PC 150. 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. [1]

MS-PC 152A. Foundations of Tactical Leadership Lab. (Formerly MS 113A) This course builds upon MS-PC 150 and 150A. 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-PC 212. Applied Team Leadership. 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-PC 251. Leadership and Ethics. (Formerly MS 212) 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 Ccadets. Open to ROTC cadets only. [3]

MS-PC 252. Leadership in a Complex World. (Formerly MS 252) 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 and 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 251. [3]

Psychology and Human Development

PSY-PC 1150. First-Year Seminar. Topics of Interest designed for first year students. Does not count in the writing requirement of the Liberal Education Core. [3]

PSY-PC 1157. First Year Writing Seminar. 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-PC 1200. Minds, Brains, Contexts, and Cultures. 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-PC 1207. Minds, Brains, Contexts, and Cultures. 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-PC 1500. Cognitive Aspects of Human Development. 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 1200/1207 or 1630 or PSY 101. [3]

PSY-PC 1600. Psychology of Thinking. 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 1200/1207, or 1500 or PSY 101. [3]

PSY-PC 1630. Developmental Psychology. 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-PC 1690. Commons Seminar. 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. [1]

PSY-PC 1700. Social and Emotional Context of Cognition. 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-PC 1750. Social and Personality Development. 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 1200/1207 or 1630 or PSY 101. [3]

PSY-PC 2000. Language Development. 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-PC 2100. Advanced Topical Seminar. 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-PC 1200/1207 or 1630 or PSY 101. This course is intended for students beyond the first year unless otherwise specified in the class schedule note. [3]

PSY-PC 2101. Introduction to Statistical Analysis. 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-PC 2102. Statistical Analysis. Second course in statistics for undergraduates. Multifactor analysis of variance designs (including repeated measures), and goodness of fit and contingency analyses. Prerequisite: PSY-PC 2101 or PSY 209. [3]

PSY-PC 2230. Family, Career, and Gender. Examines theory, research, and policy literature pertinent to family development, career development and intersections between the two, particularly as they are influenced by gender. Focus on child and adolescent socialization, family and career decision making, work commitment and values, parent-child relations, family role sharing and conflict, and workplace policies related to employees' career and family commitments. [3]

PSY-PC 2250. Infancy. The behavior and physiological development of infants reflect a complex interaction between evolutionary history and genetics, prenatal environmental influences, and early post-natal 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 1630. [3]

PSY-PC 2310. Educational Psychology. Applications of psychological theories and research to classroom settings. Cognitive development, problem solving and critical thinking, learning theories, motivation, social contexts, individual differences, classroom issues, evaluation issues. Prerequisite: PSY-PC 1200/1207 or 1630 or PSY 101. [3]

PSY-PC 2320. Adolescent Development. 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-PC 2330. Psychology of Film. In this course, students will explore the cognitive and perceptual basis of film perception and understanding. In taking a science-based approach to film, students will be actively engaged in creating films to use as the basis for experiments testing specific hypotheses about the cognitive processes that support film perception. A key theme organizing the course is not only that understanding cognition and perception can enrich our understanding of film, but also that understanding film can provide new insight into these basic psychological processes. [3]

PSY-PC 2470. Introduction to Community Psychology. (Also listed as HOD 2670) 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]

PSY-PC 2510. Experimental Research Methods in Child Development. 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 1200/1207 or 1630 or PSY 101 and PSY 209 or PSY-PC 2101. [3]

PSY-PC 2530. Psychometric Methods. 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. Prerequisite: PSY-PC 1630 or 1200/1207 and PSY-PC 2101 or PSY 209. [3]

PSY-PC 2540. Psychometrics. 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 2530 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 2101 or PSY-209 and PSY-PC 2102. [3]

PSY-PC 2550. Modern Robust Statistical Methods. 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 2101 or PSY 209 (or equivalent), and PSY-PC 2102. [3]

PSY-PC 2560. Applied Latent Class and Mixture Modeling. 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 2101 or PSY 209 (or equivalent), and PSY-PC 2102. [3]

PSY-PC 2570. Latent Growth Curve Modeling. 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 2101 or PSY 209 (or equivalent), and PSY-PC 2102. [3]

PSY-PC 2580. Correlation and Regression. 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, non-linear regression, logistic regression, Poisson regression, variable selection procedures, and regression diagnostics and graphics. Prerequisite: PSY-PC 2101 or PSY 209 (or equivalent), and PSY-PC 2102. [3]

PSY-PC 2590. Introduction to Item Response Theory. 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 the practice by illustrating the construction of tests. Prerequisite: PSY-2101 or PSY-209 (or equivalent), and PSY-2530.

PSY-PC 2600. Factor Analysis. 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 2101 or PSY 209 (or equivalent), and PSY-PC 2102. [3]

PSY-PC 2610. Applied Nonparametric Statistics. 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 2101 or PSY 209 (or equivalent), and PSY-PC 2102. [3]

PSY-PC 2620. Multivariate Statistics. Provides an introduction to matrix algebra and a survey of the class parametric multivariate techniques that are the foundation of much of modern multivariate statistics. Emphasis is on techniques that have wide application in educational and social science research, such as exploratory factor analysis, structural equation modeling, confirmatory factor analysis, discriminant analysis, canonical correlation, and multivariate analysis of variance. Prerequisite: PSY-PC 2101 or PSY 209 (or equivalent), and PSY-PC 2102. [3]

PSY-PC 2690. Special Topics in Psychology. Advanced exploration of a psychological orientation to current issues. May be repeated with change of topic. [1–4]

PSY-PC 2700. Introduction to Clinical Psychology. 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. There is an emphasis on experiential learning in the class. 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 and psychological research methods/statistics are highly recommended. [3]

PSY-PC 2820. Field Work in Psychology for Undergraduates. 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-PC 2890. Ethics for Human Development Professionals. (Also listed as HOD 2280) Normative evaluation of ethical issues in serving human needs. Examines conflicting values within moral dilemmas 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]

PSY-PC 2970. Independent Study. 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

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faculty sponsor and the director of undergraduate studies is required. May be repeated for credit. [1–3]

PSY-PC 2980. Directed Research. 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-PC 2990. Honors Research. Consent of instructor required. [1–3]

Special Education

SPED 1000. Freshman Seminar. 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]

SPED 1010. Introduction to Exceptionality. Examines issues and trends in special education and overviews the characteristics of persons with disabilities. 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]

SPED 1150. Freshman Seminar. Selected topics for freshmen. [3]

SPED 1690. Commons Seminar. 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. [1]

SPED 2010. Introduction to Teaching Students with Disabilities. 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]

SPED 2020. Family Intervention. 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]

SPED 2030. Introduction to Language and Communication. 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. [3]

SPED 2050. Augmentative and Alternative Communication. 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]

SPED 2060. Cultural Diversity in American Education. (Also listed as EDUC 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]

SPED 2080. High Poverty Youth: Improving Outcomes. (Also listed as HOD 2665) 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]

SPED 2110. Managing Academic and Social Behavior. 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 1010. Corequisite: 1 hour of SPED 2111. [3]

SPED 2111. Practicum: Management. Application of behavioral principles to classroom strategies. Planning, implementing, and evaluating instructional procedures for academic and social behavior. Corequisite: SPED 2110. [1]

SPED 2140. Attention Deficit/Hyperactivity Disorder: Educational Implications. This advanced undergraduate/master's-level course will first address the issues and controversies surrounding the definition, etiology, and identification of Attention Deficit/Hyperactivity Disorder (AD/HD). Potential relationships or related issues involving other child characteristics or difficulties, including child temperament, depression, bipolar disorder, Tourette's Syndrome, and oppositional-defiant disorder, will be addressed. A major focus of the course will be working successfully with children with AD/HD in the school and classroom. A collaborative, multimodal model that involves parents, general and special education teachers, school psychologists, and other professionals as appropriate will be emphasized. Integration of multiple forms of intervention will be explored, including affective, behavioral, cognitive, social, and medical approaches; discovering what works for children with AD/HD is an ongoing process that requires experience, persistence, and collaboration. [3]

SPED 2300. Methods of Instruction for Students with Severe and Multiple Disabilities. 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 SPED 2301. [3]

SPED 2301. Practicum: Methods of Instruction for Students with Severe and Multiple Disabilities. Field-based application of correlated course content to assessing, planning, implementing, and evaluating instructional procedures for students with severe disabilities. Corequisite: SPED 2300. [1]

SPED 2311. Field Work in Special Education: Autism, Intellectual, and Multiple Disabilities. Field-based application of correlated course content to classroom strategies. Planning, implementation, and evaluating instructional procedures for students with severe disabilities. May be repeated. Prerequisite: SPED 1010, SPED 2010, SPED 2030. Fall semester corequisite: SPED 2110, and SPED 2330. Spring semester corequisite: SPED 2050, SPED 2340, and SPED 2820. [3].

SPED 2330. Characteristics of Students with Severe and Multiple Disabilities. 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: SPED 2331. [3]

SPED 2331. Characteristics of Students with Severe and Multiple Disabilities. Field-based application of correlated course content to placement of students with multiple disabilities. Adaptations and direct procedures of assessing, planning, implementing, and evaluating instructional procedures for students with multiple disabilities. Corequisite: SPED 2330. [1]

SPED 2340. Procedures in Transition to Adult Life. 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 2110. Corequisite: SPED 2341. [3]

SPED 2341. Practicum: Transition to Adult Life. Field-based application of correlated course content to instructional strategies. Assessing, planning, implementing, and evaluating instructional procedures for community and employment integration. Corequisite: SPED 2340. [1]

SPED 2350. Access to General Education and Teaching Functional Academics. 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 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]

SPED 2400. Early Education for Children with Disabilities. Overview of issues related to early intervention for preschool-aged children with disabilities; typical and atypical development in the preschool years; methods of designing individualized, functional instruction appropriate for a range of service delivery options; consultation models for early intervention; and transitions to next environment. Corequisite: SPED 2401. [3] (Not currently offered)

SPED 2401. Practicum: Early Education for Children with Disabilities. Field-based application of correlated course content to classroom strategies. Assessing, planning, implementing, and evaluating instructional procedures for young children with disabilities. Corequisite: SPED 2400. [1] (Not currently offered)

SPED 2410. Early Intervention for Infants with Disabilities. Typical and atypical development in infancy; methods for designing individualized family service plans; method of service coordination; strategies for working with team members from other disciplines; program evaluation. Corequisite: SPED 2411. [3] (Not currently offered)

SPED 2411. Practicum: Infants and Toddlers. Field base application of correlated course content in early intervention programs for infants and children with disabilities. Assessing, planning, implementing, and evaluating early intervention programs for infants, young children, and their families. Corequisite: SPED 2410. [1]. (Not currently offered)

SPED 2420. Assessment Procedures for Young Children. Overview of measurement, theory, and practice in the assessment of early developmental problems. Course will address strategies for selecting appropriate and valid instruments and methods for the purpose of initial screening, evaluation to determine eligibility for services, and assessment to support program planning for infants, toddlers, and young children. Interpretation and synthesis of evaluation and assessment information for dissemination to families and other professionals is demonstrated. Students apply skills in early intervention, preschool, and/or early childhood education settings. [3]

SPED 2500. Medical and Educational Implications of Visual Impairments. Assessment of sensory function, including integration of information from medical rehabilitation vision care specialists, as basis for planning, implementing, and monitoring intervention/education for learners with visual impairments. Emphasis is on specific visual disorders, functional use of senses, assistive technology for enhancing visual function (i.e., optical and non-optical devices), and family/child characteristics. Linking structure/function of the 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 teacher 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]

SPED 2510. Educational Procedures for Students with Visual Impairments. 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]

SPED 2530. Braille Reading and Writing. Literary braille code and introduction to Nemeth code for mathematics. Braille writing and reading proficiency for future teachers of students with visual impairments. Introduction to strategies for infusing braille into literacy instruction and technology for producing and accessing braille. Students read, write, and proofread braille and observe teachers as they teach braille to students with visual impairments. [2]

SPED 2540. Communication and Literacy Skills for Students with Visual Impairments. 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. Open only to individuals who have completed or are currently enrolled in a braille class. Course content provided through lectures, demonstrations, observations, and integrated fieldwork. Consent of instructor required. [3]

SPED 2550. Orientation and Mobility for Teachers of Students with Visual Impairments. 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]

SPED 2580. Advanced Procedures for Students with Visual Impairments. 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/technology and universal design for learning. Course content provided through lectures, demonstrations, observations, and integrated fieldwork. Prerequisite: SPED 2510. [3]

SPED 2690. Special Topics in Special Education. 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. [3]

SPED 2720. Introduction to the Gifted Learner: Conceptions, Characteristics, and Assessment. Examines issues and trends in gifted education with a focus on the specific needs and characteristics of gifted students. Outlines theoretical conceptions of giftedness and evidence-supported practices in identification and assessment - including those who may not be typically identified, such as twice-exceptional, low-income, and culturally diverse students. [3]

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SPED 2730. Psychology of the Gifted Learner. Highlights internal and external factors impacting the psychological development of gifted students. Focuses on theoretical frameworks and practical strategies for the provision services, including consultation, collaboration with schools and families, counseling supports, behavioral models, and collaboration with community agencies. [3]

SPED 2740. Educating Gifted Students: Adaptations of Curriculum and Instruction. Focuses on theoretical conceptions of curriculum development and instructional modifications for mild, moderate, and highly gifted students. Includes curriculum design theoretical frameworks, differentiation strategies, and how to measure the effects of adaptations to match gifted student learning needs. [3]

SPED 2750. Organizational Structures and Planning of Gifted Programs. Focuses on theoretical frameworks for organizing and implementing evidence supported programs for the gifted; service delivery models, program evaluation, data collection, supervision models, and systemic development of programming and support structures. Attention is also devoted to poverty and cultural differences. [3]

SPED 2760. Practicum in Gifted Education. Focuses on field study, action research, or practical application of course content for providing leadership, curriculum adaptations, and program planning for a variety of gifted learners including underrepresented populations and mild, moderate, and highly gifted individuals. [3]

SPED 2800. Characteristics of Students with High-Incidence Disabilities. Focus on issues related to high-incidence disabilities; mild intellectual disabilities, learning disabilities, ADHD, and emotional disturbance. A consideration of cognitive, perceptual, language, academic, and social/emotional characteristics and needs of these students will be examined. Emphasis will be on understanding concerns related to identification, assessment, and instructional planning. Legal and ethical implications associated with service delivery will also be explored. [3]

SPED 2801. Field Work in Special Education for Mild/Moderate Disabilities. 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. Prerequisite: SPED 1010, SPED 2010, SPED 2800. Fall semester corequisite: SPED 2110, SPED 2830 and SPED 2840. Spring semester corequisite: SPED 2810, SPED 2820, and SPED 2860. [3].

SPED 2810. Assessment Strategies for Students with Disabilities. Overview of educational measurement, theory, and practice in the assessment of learning problems. Assessment and monitoring of student progress using both standardized and non-standardized instruments. Interpretation and incorporation of curriculum-based assessment methodology for the development of instructional programs is required. Synthesis of assessment data for dissemination to professionals and parents is demonstrated. Students apply skills in classroom settings. Prerequisite: SPED 1010 and PSY 2310 or 2320. Corequisite: 1 hour of SPED 2811. [3]

SPED 2811. Practicum: Assessment Strategies for Students with Disabilities. Experience in measuring student performance in classroom settings. Prerequisite: SPED 1010, 1011, 2010, consent of instructor. Corequisite: SPED 2810. [1]

SPED 2820. Teaching Mathematics to Students with Disabilities. Presents empirically validated instructional procedures to address the mathematical deficits of students with disabilities. Focuses on assessment, error analysis, explicit teaching procedures, and instructional design principles that apply to mathematics. Proficiency in the development of instructional lessons is required. Must co-register for 2821. [3]

SPED 2821. Practicum: Teaching Mathematics to Students with Disabilities. Field-based application of correlated course content to assessing, planning, implementing, and evaluating instructional procedures for procedures which integrate individualized educational plans in group instructional environments. Corequisite: SPED 2820. [1]

SPED 2830. Teaching Reading to Students with Disabilities. Presents empirically validated instructional procedures to address the academic deficits of students with disabilities. 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. Prerequisite: SPED 1010, 2010, 2110, 2810. Corequisite: 1 hour of SPED 2801. [3]

SPED 2831. Practicum: Teaching Reading to Students with Disabilities. Field-based application of correlated course content to classroom strategies. Planning, implementation, and evaluating instructional procedures for students with mild to moderate disabilities. Corequisite: SPED 2830. [1]

SPED 2840. Oral and Written Language. 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. [3]

SPED 2860. Procedures in Classroom Management and Collaboration with Families for Students with Mild/Moderate Disabilities. This course focuses on current teaching practices in the field of education and special education, with an emphasis on examination of the research bases of effective classroom management for students at risk for and with behavior problems. An additional emphasis is addressing problem behavior within the family contexts. Students are expected to synthesize and analyze research on effective teaching and management practices and to apply the knowledge to classroom situations for students with behavior problems. [3]

SPED 2870. Accommodating Academic Diversity in the Classroom. 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]

SPED 2871. Practicum: Accommodating Academic Diversity in the Classroom. 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 2870 or 2877. [5]

SPED 2877. Accommodating Academic Diversity in Content Areas. Explores the importance and difficulty of teaching heterogeneously grouped students in inclusive classrooms. Focuses explicitly and exclusively on methods to help classroom teachers instruct and manage the behavior of a broad range of students at multiple points along the achievement continuum. Emphasis is also placed on knowledge, skills, and dispositions needed for effective collaboration among school personnel and families. This course satisfies one writing course requirement. Corequisite: SPED 2871. [3]

SPED 2900. Student Teaching Seminar. 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. Must co-register for either SPED 2901 or SPED 2911. [3]

SPED 2901. Student Teaching in Special Education and Education. (Also listed as EDUC 2704) 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 2900. [9]

SPED 2911. Student Teaching in Special Education. 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 2900. [9]

SPED 2960. Individual Study in Special Education. Semi-independent study of selected topics in special education. May be repeated. Consent of instructor required. [1–3]

Teaching and Learning

Education

EDUC 1020. Society, the School, and the Teacher. 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]

EDUC 1690. Commons Seminar. 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. [1]

EDUC 2060. Cultural Diversity in American Education. (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]

EDUC 2115. Language and Literacy Learning in Young Children. Examines sociocultural and cognitive theories of language learning, theoretical models of the reading and writing processes, and interconnections between reading, writing, speaking, and listening. Emphasizes patterns of reading and writing for children from birth to age 8 and relates these to features of learning environments. Observation and assessment strategies are introduced through an embedded field experience of six hours which requires working with preschool-age child in a school setting. [3]

EDUC 2116. Practicum in Teaching Early Childhood Reading and Language Arts. Field experiences in a variety of early childhood centers or classroom settings designed to provide practical experience and reflection on the teaching of reading and the language arts. Corequisite: EDUC 2117. [1]

EDUC 2117. Methods of Language and Literacy Instruction in Early Childhood. This course introduces methods for structuring classrooms to teach and assess reading, writing, speaking, and listening as part of an integrated language arts program for children from birth through grade 4, with special emphasis on children from birth to age 8. Corequisite: EDUC 2116 [3]

EDUC 2120. Children in Families and Schools. 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]

EDUC 2140. Learning and Development in Early Childhood Education. 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]

EDUC 2150. Science and Social Studies Instruction in Early Grades. This course is designed to prepare prospective early childhood teachers to provide instruction in science, and social studies. The course builds on the core content course in science and social studies in the early childhood program as well as the curriculum courses for ages 0–3 and age 3–kindergarten. Prerequisite: SSED 2100. Corequisite: MTED 2150 and EDUC 2151. [3]

EDUC 2151. Practicum in Mathematics, Science, and Social Studies Instruction in Early Grades. Field experiences in an early grades classroom are designed to provide practical experience and reflection on the teaching of mathematics, science, and social studies. Corequisite: EDUC 2150 and MTED 2150. [1]

EDUC 2180. Managing Instructional Settings for Young Children. The purpose of this course is to introduce students to the social and emotional characteristics of young children that affect the ways they function in groups, and to acquaint students with planning and management philosophies and a variety of practices to use in guiding the behaviors of young children, from infancy through age 8. [2]

EDUC 2210. Practicum in Elementary Education. Field experiences in a variety of school, grade level, and instructional settings, designed to integrate and apply teaching skills developed in the elementary social studies methods course. Corequisite: SSED 2210. [1]

EDUC 2215. Theory and Methods of Reading Instruction in Elementary Schools. Examines approaches, strategies, and methods for teaching reading in elementary classrooms. 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. Corequisite: EDUC 2217 and EDUC 2216. [3]

EDUC 2216. Practicum in Teaching Elementary Reading and Language Arts. 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. Corequisite: EDUC 2215 and EDUC 2217. [1]

EDUC 2217. Language Arts in Elementary Schools. The nature of language development in the elementary school years, and principles and practices for teaching the English language arts. Corequisite: EDUC 2215 and EDUC 2216. [3]

EDUC 2250. Practicum in Elementary Mathematics and Science. Field experiences providing students an opportunity to integrate and apply teaching skills developed in the elementary mathematics and science methods courses. 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 2250 and SCED 2250 [1]

EDUC 2270. Managing Instructional Settings. Examines several planning and management philosophies and a variety of practices for use with early childhood and/or elementary school students. [2]

EDUC 2290. Student Teaching Seminar: Elementary. Seminar to accompany EDUC 2701. Beginning fall 2013, there will be a $300.00 Teacher Performance Assessment fee associated with this course. [3]

EDUC 2291. Student Teaching Seminar: Early Childhood. Seminar to accompany EDUC 2702. Beginning spring 2013, there will be a $300.00 Teacher Performance Assessment fee associated with this course. [3]

EDUC 2310. Teaching in Secondary Schools. Exploration of general skills and principles of teaching and learning in secondary schools, including curriculum organization and patterns, teaching methods, and professionalism of the secondary school teacher. A practicum in secondary schools is included. [3]

EDUC 2340. Practicum in Secondary Education I. Field experience in middle and secondary school settings. Designed for secondary education majors in their sophomore year. Corequisite: PSY 2320. [1]

EDUC 2350. Practicum in Secondary Education II. Field experience in middle and secondary school settings. Designed for secondary education majors in their junior year. [1]

EDUC 2430. Addressing Problems in Literacy Learning. An analysis of multiple factors contributing to literacy problems students experience, and philosophies and principles of instructional practice designed to individualize instruction and support literacy development. Provides teaching experience within a school setting. Prerequisite: EDUC 2115, 2215, or equivalent. [3]

EDUC 2520. Principles for Teaching ELL Students. This course, specifically designed for non-ELL majors, provides an overview of

theoretically and empirically supported practices concerning the education of English language learners (ELLs) in grades preK-12. Topics include: the role of second language acquisition in academic achievement, instructional strategies for developing English listening, speaking, reading and writing while accessing the core curriculum, appropriate assessment of ELLs in the classroom, the importance of ELLs home languages and cultures, and ESL research and history relating to policies and programs affecting ELLs. Consideration of how to attain more equitable outcomes for ELLs through schooling is a major focus of this course. [3]

EDUC 2530. ELL Educational Foundations. This course focuses on understanding the processes of second language acquisition, learning, development, and individual, cognitive, and social factors that influence second language learning in North America (particularly in the United States). In addition, it examines the theoretical, historical, political, legal, and research bases for the education of students from linguistically and culturally diverse populations. Program models and the theoretical bases for these models are covered in this course. National policies and current issues relevant to the learning of English language learners are emphasized. Corequisite: 1 hour EDUC 2571. [3]

EDUC 2540. ELL Methods and Materials. This course focuses on bilingual (native language and ESL) curriculum development and instruction for students (preK-12) in a variety of language and program settings. Second-language instructional theory and practice, materials selection and development for LEP children, and bilingual and ESL literacy and content area instruction (mathematics, science, social studies, English education) are covered. Frameworks for evaluating curriculum materials and their instructional recommendations for ELL students are provided. Corequisite: 1 hour EDUC 2572. [3]

EDUC 2550. Linguistics and Language Acquisition for ELL Teachers. This course focuses on the applying of theories of linguistics and second language acquisition to the teaching of English language learners. Topics covered include the structure of the English language, English as a system, language acquisition and development, language variation, and theories of second language acquisition. [3]

EDUC 2560. Assessment of ELL. This course focuses on the theoretical and practical aspects of language testing for second-language learners. Instruments used by educators to assess the language proficiency and academic achievement of linguistically diverse students are presented and demonstrated. The course examines the purposes and types of language tests in relation to theories of language use and language teaching goals; discusses testing practices and procedures related to language teaching and language research; and includes the planning, writing, and administration of tests, basic descriptive statistics, and test analysis. Rubrics for relating assessment information to instruction and program planning are developed within this course. Corequisite: 1 hour EDUC 2573. [3]

EDUC 2570. Practicum for Teaching ELL. 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. May be repeated. [1–3]

EDUC 2571. Practicum for Teaching ELL I. 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 2530. [1]

EDUC 2572. Practicum for Teaching ELL II. 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 2540. [1]

EDUC 2573. Practicum for Teaching ELL III. 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 2560. [13]

EDUC 2690. Special Topics in Education. Exploration of special issues on topics related to education. May be repeated for credit with change of topic. [1–3]

EDUC 2701. Student Teaching in the Elementary School. Observation and teaching experience in elementary schools. Undergraduate credit only. Prerequisite: Admission to student teaching. [9]

EDUC 2702. Student Teaching in Early Childhood. Observation and teaching experience for students seeking preK-3 licensure. Undergraduate credit only. Prerequisite: Admission to student teaching. [9]

EDUC 2703. Student Teaching in the Secondary School. Observation and teaching experience in secondary schools. Undergraduate credit only. Prerequisite: Admission to student teaching. [9]

EDUC 2704. Student Teaching in Education and Special Education. (Also listed as SPED 2901) 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]

EDUC 2920. Social and Philosophical Aspects of Education. Exploration of the interaction between contemporary social problems and various philosophies in relation to educational theory, policy, and practice. [3]

EDUC 2960. Individual Study in Education. Semi-independent study on selected topics in education. Consent of instructor required. May be repeated. [1–3]

EDUC 2980. Honors Research in Education. Individual programs of reading on the conduct of research studies in education. May be repeated. Consent of instructor required. [1–3]

English Education

ENED 2030. Fostering Language in Diverse Classrooms. 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]

ENED 2100. Literature and Drama for Young Children. Explores characteristics of good literature (with a particular focus on picture books and poetry) for children ages birth to 10, authors and illustrators of the genre, and issues in the area of literature for young children. Also explored is the study of drama as it impacts the development of young children. [3]

ENED 2200. Exploring Literature for Children. 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]

ENED 2280. Language Study in the Secondary Classroom. 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]

ENED 2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. Beginning fall 2013, there will be a $300.00 Teacher Performance Assessment fee associated with this course. [3]

ENED 2320. Reading and Learning with Print and New Media. 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]

ENED 2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. Corequisite: ENED 2370 [1]

ENED 2370. Teaching Literature and New Media in the Secondary School. 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 2310 or consent of instructor. Corequisite: ENED 2360. [3]

ENED 2380. Teaching Writing in Secondary Schools. 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]

ENED 2690. Special Topics in English Education. Exploration of special topics related to English education. May be repeated with change of topic. [3]

ENED 2920. Literature, Popular Culture, and New Media. 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]

ENED 2960. Individual Study in English Education. Semi-independent study on selected topics in English education. Consent of supervising instructor required. May be repeated. [1–3]

Foreign Language Education

FLED 2690. Special Topics in Foreign Language Education. Exploration of special issues or topics related to foreign language education. May be repeated for credit with change of topic. [1–3]

FLED 2960. Individual Study in Foreign Language Education. Semi-independent study on selected topics in foreign language education. May be repeated. Consent of instructor required. [1–3]

Humanities Education

HMED 2150. Arts Education for Young Children. This course is designed to acquaint the early childhood teacher with concepts, techniques, and materials for creating opportunities for young children to learn about the visual arts and music. Strategies for incorporating art activities into group settings will be explored, as well as accommodating individual differences in young children's interest in and responsiveness to the arts. [2]

HMED 2250. Introduction to Arts Education. Acquaints the student with the philosophical and pedagogical base with which to develop competence in teaching the arts. [2]

HMED 2690. Special Topics in Humanities Education. Explores special topics related to humanities education. May be repeated with change of topic. [1–3]

HMED 2960. Individual Study in Humanities Education. Semi-independent study on selected topics in humanities education. May be repeated. Consent of faculty supervisor required. [1–3]

Mathematics Education

MTED 2100. Young Children's Mathematical Thinking and Learning. The focus of the course is on ways in which young children develop increasingly sophisticated additive structures, including pre-number and early number concepts, place value, strategies for single-and double-digit computation, and measurement. Children's mathematical thinking and learning as well as ways to support that learning are investigated. This course is prerequisite to or corequisite with EDUC 2150. This course is not recommended for freshmen. [3]

MTED 2150. Mathematics Instruction in the Early Grades. This course is designed to prepare prospective early childhood teachers to provide instruction in mathematics. The course builds on the core content course in mathematics in the early childhood program as well as the curriculum courses for ages 0-3 and ages 3-kindergarten. Prerequisite: MTED 2100. Corequisite: EDUC 2150 and EDUC 2151. [2]

MTED 2200. Mathematics for Elementary Teachers. This course is for students seeking elementary school licensure with an emphasis on grades two through six. This course will cover issues of both content and pedagogy that are relevant to these grades. Not recommended for freshmen. This course is prerequisite to MTED 2250. [3]

MTED 2250. Teaching Mathematics in Elementary Schools. This course is the second in a sequence of courses designed for those students seeking elementary licensure with an emphasis on grades two through six. This course deals with issues of both content and pedagogy that are relevant to these grades. Corequisite: SCED 2250 and one hour of EDUC 2250. Prerequisite: MTED 2200. [2]

MTED 2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. Beginning fall 2013, there will be a $300.00 Teacher Performance Assessment fee associated with this course. [3]

MTED 2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. Corequisite: MTED 2370. [1]

MTED 2370. Teaching Mathematics in Secondary Schools. 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 2310 or consent of instructor. Corequisite: MTED 2360. [3]

MTED 2690. Special Topics in Mathematics Education. Exploration of special topics related to mathematics education. May be repeated with change of topic. [1–3]

MTED 2800. Computers, Teaching, and Mathematical Visualization. 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]

MTED 2960. Individual Study in Mathematics Education. Semi-independent study on selected topics in mathematics education. May be repeated. Consent of supervising instructor. [1–3]

Science Education

SCED 2200. Science for Elementary Teachers. This course is designed to examine the relationship between science, technology, and society. Emphasis will be on relating science concepts to real world applications, to societal influences and the changing nature of science. The role of inquiry in science will be examined and experienced. A knowledge of introductory earth, biological, and physical science is presumed and will be utilized to present a view of science as an integrated discipline. [3]

SCED 2250. Teaching Science in Elementary Schools. 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–8, with emphasis on grades 2–6. Prerequisite: SCED 2200. Corequisite: MTED 2250 and EDUC 2250. [2]

SCED 2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. Beginning fall 2013, there will be a $300.00 Teacher Performance Assessment fee associated with this course. [3]

SCED 2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. Corequisite: SCED 2370 [1]

SCED 2370. Teaching Science in Secondary Schools. 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 2310 or consent of instructor. Corequisite: SCED 2360. [3]

SCED 2690. Special Topics in Science Education. Exploration of a special topic related to science education. May be repeated with change of topic. [1–3]

SCED 2960. Individual Study in Science Education. Semi-independent study on selected topics in science education. May be repeated. Consent of supervising instructor required. [1–3]

Social Studies Education

SSED 2100. Scientific and Historical Reasoning in Young Children. 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]

SSED 2210. Teaching Social Studies in Elementary Schools. 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–8, with emphasis on grades 2–6. Corequisite: EDUC 2210. [2]

SSED 2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. Beginning fall 2013, there will be a $300.00 Teacher Performance Assessment fee associated with this course. [3]

SSED 2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. Corequisite: SSED 2370 [1]

SSED 2370. Teaching Social Studies in Secondary Schools. 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 2310 or consent of instructor. Corequisite: SSED 2360. [3]

SSED 2400. Human Geography. 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]

SSED 2690. Special Topics in Social Studies Education. Exploration of special topics related to social studies education. May be repeated with change of topic. [1–3]

SSED 2960. Individual Study in Social Studies Education. Semi-independent study on selected topics in social studies education. May be repeated. Consent of supervising instructor required. [1–3]

Peabody College

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SUZAN B. McINTIRE, B.A., Assistant to the Dean

Faculty Council

Stella Flores, Brian Heuser, Maury Nation, Deborah Rowe, Megan M. Saylor, Heather L. Smith, Barbara Stengel, Naomi Tyler. Ex Officio: Camilla P. Benbow.

Endowed Chairs and Named Professorships

Patricia and Rodes Hart Dean of Education and Human Development
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
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